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GLEANINGS IN BEE CULTURE

JULY, 1919



EDITORIAL

WHENEVER COMMON granulated sugar is scarce or hard to get, the price of honey begins to take an upward trend. This was strikingly exemplified when restrictions were



A Million-ton Shortage of Sugar.

placed upon the purchase and sale of sugar during the last two years of the Great War. When manufacturers and the housewife can not get all the sugar they want they naturally turn to honey, as it is the only sweet outside of cheap molasses that has sufficient strength to serve their purpose. The glucose syrups have too little actual sweetening power and too much of the gums to be of much use as a substitute for sugar.

Within the last few weeks there have been various rumors to the effect that there was going to be another scarcity of sugar. A late report going the rounds of the newspapers asserts there will be in the aggregate a million-ton shortage of the world's sugar supply, on top of the fact that prohibition is going to make an enormous demand for the product in this country and Canada. Besides this, Europe is crying for sugar. Their beet fields have either been destroyed or used for the growing of grains.

Over against this, another statement is made in the western papers concerning beet-sugar production in the West, to the effect that not only has the acreage of beets been increased by 11,000 over last year, but that the reserve supply is 6,000,000 bags this year as against 3,000,000 for the same period last year; but remember this is for beet sugar only. In spite of this increase there has been a falling off over last year of all sugars of over a million tons according to high authority.

Said one of the leading officials of the so-called sugar trust to the Editor of Gleanings, who thought it proper to go to the fountain head for his information, "The reports from our domestic and insular possessions show that, in spite of the increased supply of beet sugar, there will still be a shortage of sugar over last year of over a million tons. The newspaper reports are substantially correct."

When asked the probable effect of prohibition in stimulating a demand for sugar he said, "There is no question but that the cutting off of liquor in its various forms will make an increase in the demand for

sugar, which is a real stimulant, not an artificial one"; and then he added, "We have always noticed in and around our mills where prohibition went into effect, that the former drinkers would buy large quantities of candies, soft drinks, and icecream, when before they never bought anything of this kind."

When asked whether sugar would go up or down during or after the period of reconstruction, he said, "Congress has guaranteed to the beet-sugar interests in this country that the price of their sugar shall not go down before September next. It is not likely," he continued, "that, in view of present shortage and demand, sugar will go down for the present. What the effect of open competition will be later on I can not tell." Our informant preferred not to have his name given, but that he knew what he was talking about was very clear.

As pointed out in our last issue, the effect of sugar shortage and prohibition must necessarily stimulate a demand for honey. "But," some one says, "the President has requested Congress to remove the war-time ban on beer and wine." A canvass of the Senate and House shows that Congress is overwhelmingly against making any change. Thirty-two States have adopted state-wide prohibition, no matter what Congress may or may not do; and forty-five States have ratified the national amendment. Our lawmakers will not dare face their constituents and vote to remove war-time prohibition. But suppose they did; it would not affect the thirty-two States dry by legislative enactment nor a large part of the territory of the remainder. Beekeepers all over the land, if they will consult the interests of their boys and girls and their pocketbooks, will write to their senators and representatives in Congress protesting against any change in war-time prohibition.

We are sorry that our great President—great for some of the big things he has accomplished in making the world safer and saner—should have seen fit to take this stand. It is far more important to save for starving Europe the grain that would otherwise go into beer, and to save the boys and girls of our land, than it is to save the wine and beer interests who have had a year's warning to get under cover. The greater part of the wine vineyards of California have already been grafted to produce

a table grape; and many of the breweries of the country have been converted into creameries, soft-drink factories, and ice-plants, for which with very little change, they are well adapted.



EACH SPRING there is a growing volume of business between Northern producers and



Dissatisfaction in Early Shipments of Bees.

Southern breeders solicit this business, and perhaps it can be said that the majority of them give conscientious attention to details and have a sincere desire to please their customers. There is no reason why this volume of business should not continue to grow if properly taken care of. There are some breeders, however, who each year solicit more business than they can properly take care of. They know from past experience that weather conditions may be very unfavorable, but they make promises (perhaps in the best of faith at the time), only to realize very soon that they can not possibly succeed in accomplishing what they had intended. The Northern producer, in ignorance of the ultimate inability of the breeder to fill his order, does not re-order elsewhere but lives in hope—only to be badly disappointed finally and prevented from carrying out his plans.

Quite a large number of Ontario producers combined their orders for bees with E. V. Tillson, of the Tillson Co., contracting with a certain Southern breeder for delivery of bees and queens in quantity about the first of May. The contract was entered into in December, 1918. (On account of the fact that there had been numerous complaints uncared for that this breeder attempted more than he could possibly accomplish, his advertising in Gleanings had been refused since 1917.)

In April Mr. Tillson inquired whether they could reasonably expect shipment as agreed, and he was emphatically assured that the bees would be forwarded on date specified.

The bees were not shipped, however, until some time in June; and there was, moreover, considerable dissatisfaction in addition to the long delay over the non-arrival of certain queens with the bees. The delay was so great that many of the producers refused to accept the shipments when they arrived, saying they had no use for bees at such a late date.

The breeder's excuse was the incessant rains during much of May. Continued failures, however, and a series of complaints in other years seem to show that the inclement weather was possibly not the only reason for failure. Moreover, there seem to be few complaints against other Southern breeders during this same period. It is the old story of attempting the impossible.

As stated above, perhaps the majority of

Southern breeders have given satisfaction, but the intense dissatisfaction which the minority have given seriously threatens the whole early-shipment-north business. Almost any one will excuse a breeder for failure to ship when it is downright impossible, especially if proper notice is sent, but no one will excuse promises by the dozen followed by absolute silence. It is true that this year especially, the weather in May in most parts of the country was exceedingly unfavorable. Then when the warm weather came, it came with a rush, and in almost 24 hours' time. Then days of unseasonable heat followed the three or four weeks of chilly rain. Under such conditions the patience of the producer and breeder alike is tried to the utmost.

The wisest breeders do not guarantee large shipments at any one early date. They merely guarantee to do the best they can. Making rash promises to secure orders is not good business.



A LARGE NUMBER of commercial honey-producers are going into the business heavier than ever.



No Need of Overstocking.

Many are now making their plans for next year and are writing to us, asking where they can get better and more bee range. We are answering letters almost every day covering that point. If a beekeeper only takes pains he can find more bee territory without lapping over on the territory of another. In our recent travels thru three of four States we found some fine territory heavily covered with alsiike on a deep rich soil; and yet the remarkable thing was there were very few bees in some of the territory. It seemed to us a pity that such fine bee range should not be used; and it is likewise a pity—yes, a crying shame, that so many, on the “peny-wise-and-pound-foolish” plan, will squat their apiaries down within a fourth or half a mile of other prosperous yards. It is regrettable that there is no law to prevent those who have no regard at all for the golden rule from poaching on the territory of others. There is not a particle of need of it; because there is plenty of splendid territory entirely unoccupied.

Just as soon as Mr. Poacher overlaps the territory of another, he is not only cutting down the crop of his neighbor, but he is cutting down his own as well. There are very few locations that will support over 100 colonies to the location. Many will not take care of more than 25 or 30. When 100 colonies will thoroly cover a bee range it is the height of folly to squat another yard of 100 within a quarter or half a mile. Both parties lose by the transaction. While the second man has a perfectly legal right to put his bees anywhere he likes so long as he can secure a plot of ground, he has no moral right to do so. So long as there are thousands and thousands of acres of open ter-

ritory, there is no need of poaching on domain that by right of discovery or priority of occupation belongs to the other fellow.



CALIFORNIA — or, rather, the southern part of the State—usually has the first honey ready to market.



California Gossip on Honey Prices.

There is early honey in other States, in the South, but not in such quantities as to have much bearing on the market. When southern California has a large yield, and some cars are ready to be shipped to the East, the market is inclined to start off at a moderate pace. Last season California had a good crop; but the market did not drop, because war-time conditions were making an abnormal demand; and the prices, instead of sagging, as soon as the full truth was known began to go upward.

As already explained, the world was starving, and there was a ban on sugar. The housewife and the manufacturer could not get all they wanted, and they took honey, even though they had to pay several times as much for it as for sugar. Then when the sugar ban was lifted the price of honey began to tumble. Buyers stopped buying and began to "unload"—some at considerable loss. Every one got cold feet, and some frankly confessed that they got 'em "frost-ed." No, sir; no more honey for them. When there was a prospect of another big California yield, buyers began to say that honey would do well if it brought ten or even eight cents.

All at once it began to be apparent that unless there was six or eight inches more of rain in California, and that right soon, sage would be a failure, or at most only a light crop. The rains didn't come. At that time it was figured that orange, usually reliable, would furnish its usual quota of honey; but when it, too, showed up with only half a crop, producers began to talk high prices again; for had they not been told by the Editor of Gleanings that sage and orange were used largely by the bottlers? They began to talk 20 and 23 cents for their sage and orange, and they were going to get it.

The buyers and brokers in the mean time were all at sea. Not one of them was buying honey—didn't dare to, because, they said, the figures asked were too high. They were all waiting for the "other fellow" to start the ball rolling. Some of them with their frost-bitten feet didn't want to get them frozen stiff, and so they held back, fearing that, if they made the "first break," they would either buy too high and lose, or let the "other fellow" scoop all the desirable lots offered, and they be left high and dry—no honey and no profit.

One buyer said: "It would be much better for the producer to be content with a more moderate figure. It would be saner

and safer to start off at 16 or 17 cents, and let the market rise, if it would, than to start off at 23 and then have the market begin to tumble and crash away below 15 cents." Said this broker further: "History repeats itself. This thing has happened time and again with beans and other commodities and it is possible that it may happen this year with honey."

There were some purchasers, more conservative, who were inclined to accept the view last expressed, for they argued that, if there should be a large crop of alfalfa and of white clover in the East, 23 or even 20 cents would be too high.

The matter was laid before General Manager Justice, of the California Honey Producers' Co-operative Exchange. Said Mr. Justice: "I welcome high prices for my members, and should like to get them; but as we don't know what the yield from alfalfa and eastern clover is going to be, I am inclined to take a more conservative view of the situation until we know. To get the price too high at the start is more dangerous than to get it too low."

Justice holds the key to the situation to a great extent. His organization has nearly a thousand members with an aggregate of about 150,000 colonies. The other organization, the Southern California Beekeepers' Association, also has a following; and it is reasonable to suppose that the day has gone by when the small beekeeper, simply because he has to have the money, will sell at low prices. There are several of the large producers who are not in either organization; but there is no danger that they will sell too cheap.

The all-absorbing question with producers and buyers in California the first of June was, "What are the prices to be?" The sequel will be shown by the market quotations in this issue.



AS IN THE EAST, so in the West, bees are often pretty cross just as the honey flow is



Bees Just "Awful Cross."

tapering off. This is particularly noticeable when the flow is heavy and then chokes off suddenly. Bees are usually very good-natured in an ordinary clover flow because the yield is heavy at no time; and when it does stop it does it very gradually.

This is not so in the case of eastern basswood or California orange. The honey in either case fairly drips from the blossoms, so heavy is the flow when the conditions are right. Very often the flow will let up rather abruptly with either, and then "wow! how the beggars do sting!" The Californians are sort o' used to this; but an eastern "tenderfoot" wants a good veil with wire-cloth facing and a good smoker. Even the Californians seem to prefer wire veils, and there is a reason.

EXTRACTING IN CALIFORNIA

Permanent and Portable Extracting Houses. Danger of Overstocking. Spreading Disease, Extracting Time

By E. R. Root

IF there is any place in the United States where migratory beekeeping is practical in some form or another, it is in California. The seasons are so changeable, and the honey flora so varied, that the beekeepers must adapt themselves to conditions. Everything in the way of equipment must be light and portable. While the main highways are equal to any in the world, some of the roads are very poor. Many of the mountain roads leading to bee pasturage are narrow, rough, and decidedly uphill; and even in the orange districts the apiaries often have to be moved over soft cultivated ground. The hives must be simple and substantial. The frames used are mainly self-spacing Hoffman that are always ready for moving. The extracting-houses are small, light, and usually made in sections held together by means of bolts or

clasps. Very often common tents with a mosquito-netting window in one end are used. Whatever structure is employed it must be of such a design

that it may be taken down for easy moving.

Use of Auto Trucks.

The use of light automobile trucks—usually the Ford type, on account of the mountain roads—is almost universal for moving

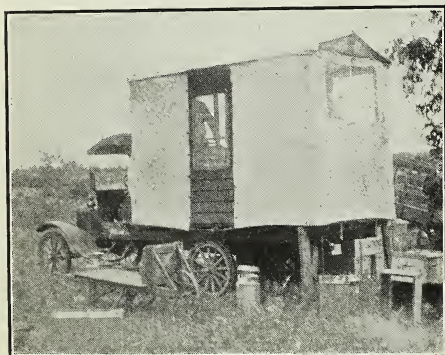


Fig. 1.—C. W. Johnson's one-ton Ford truck with screened extracting-house on the platform. Notice that the platform, while in use for extracting, is braced with two-by-fours. The wheelbarrow in the foreground carries the supers back and forth.

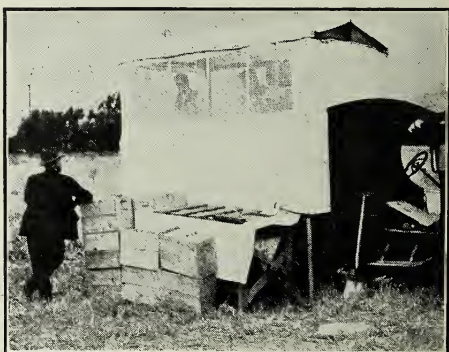


Fig. 2.—The other side of the one-ton Ford extracting-house, showing the mosquito-netting windows for ventilation and light. Chas. F. M. Stone is talking to the operators. With this extracting-house on wheels Mr. Johnson takes his honey from his thousand colonies.

and for carrying the extracting crews. Where the yards contain from 200 to 500 colonies (and there are a few of the latter size in the orange districts), heavy two-ton and three-ton trucks with large platforms are hired at so much per day or mile. In these cases the whole yard is often moved in one load. The equipment may or may not be moved with the same heavy truck. More



Fig. 3.—Apiary and extracting-house of A. F. Tice, up among the orange groves. This yard was one of the few having a good yield of orange honey this year. It was operated by his son, A. W. Tice.

often it is carried with the light truck, or a Ford with a two-wheel trailer. By the way, the trailer is very common, especially in connection with Fords; but they must have pneumatic tires and good springs.

Extracting Houses on Wheels.

I have run across a number of beekeepers who use for all purposes a regular Ford ton truck, and it certainly is a very serviceable outfit. Its rate of speed is low, but it gets there. With a large-sized platform that projects over the running-gear, it is eminently adapted to hold a framework covered with a cloth and mosquito netting for an extracting-room. The Johnson outfit shows this type. The only objection—an objection that applies to any extracting-room on wheels—is the limited amount of room for extractor, uncapping-outfit, and surplus supers of combs.

Permanent Extracting Houses.

Many beekeepers have permanent extracting-houses made of cheap lumber at each yard, where they also live and sleep. When they move the bees they go to another "shack" of the same sort, taking with them the equipment. The objection to the

clamps, and covered with cloth and mosquito netting, is used. The Tice outfit, one of the best I have seen, is made up of door panels. They all have a roof of canvas, or



Fig. 5.—Dismountable extracting-house of Frank McNay, Pasadena. This is made of four large panels or frames covered with cloth and mosquito netting. It is held together at the corners by means of large metal hinges. When it is desired to move, the bolts to the hinges are withdrawn, when the two sides of the hinges come apart, releasing the frames, when they are loaded one by one on to a truck. This building is very cheap and serviceable.

even of common muslin, more to ward off the sun than the rain, which is not common during the time of extracting. They are all take-down-able so that they can be loaded on to a truck in an hour's time. If an obnoxious neighbor or a failure of locality renders moving necessary they can be easily moved.

Tents for Extracting.

The Lusher boys of Pasadena, with their 1,800 colonies, use a common wall tent with high sides for an extracting-house. One gable end has a large window covered with mosquito netting. The extractor is placed next to this "window" where the fumes of

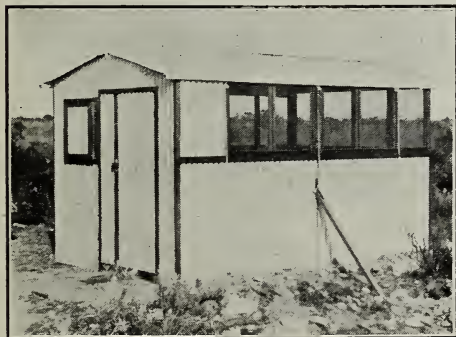


Fig. 4.—This dismantlable extracting-house used by H. A. Stearns of Duarte differs from the others in that it is made of corrugated metal. It is very neat and well designed, and should last indefinitely. The roof is covered with canvas.

permanent building is the danger that locations can not be held, or that neighbors may make it impossible to remain. I have seen many of these old bee-shacks up on the mountain sides that have been abandoned. These are certainly a waste of hard-earned money at the present price of lumber.

Take-down-able Extracting Houses.

A very common form of extracting-house is represented by the type used by Tice, McNay, and Stearns, here shown. Sometimes corrugated metal is used as seen in the Stearns building. More often a framework held together by bolts, hinges, or



Fig. 6.—Portable extracting-house of A. F. Tice, Los Angeles, also shown in Fig. 3. This structure is made up of door panels held together by clamps and bolts. The fact that Mr. Tice is a carpenter and builder explains why it is so neat and well designed. It is one of the best portable dismantlable extracting-houses in California.

the freshly extracted honey draw any robbers that may be present, and away from the door that is always kept closed by the tent flaps.

All these different schemes have their merits. What is good for California will be



Fig. 7.—Interior of Fig 6, looking out into the apiary shown in Fig. 3. The end of the uncapping-can and the handles of three uncapping-knives sticking up are shown at the right.

found serviceable in the East and middle West.

Putting the Extracting-combs Back on the Same Hives.

It is a very common practice among the best beekeepers to put the extracting-combs, after they are emptied, back on the hives whence they came. This is done to prevent the spread of disease thru the interchange

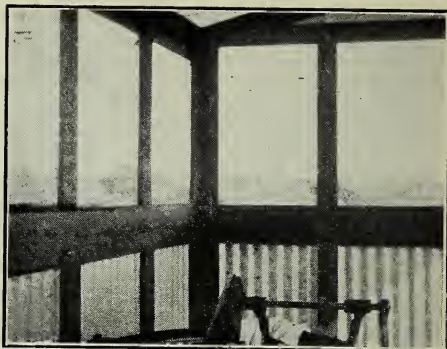


Fig. 9.—Interior of building shown in Fig. 4. It is held together by barndoor hasps and wooden pegs on the inside of the corners. The windows are wooden frames with wire screen.

of combs. It is to be regretted that the practice is not universal, with the general prevalence of brood diseases, not only in California but thruout the United States. Different beekeepers have different systems for putting back the combs. Some use a scheme of numbering supers and hives like Mr. Larinan; and others, like the Lusher brothers, work one hive at a time, so manip-



Fig. 8.—A small portion of a 400-colony apiary belonging to A. E. Lusher. The extracting-“house” consists of a tent with high side walls. One end of the tent opposite the door has a large window covered with mosquito netting for light and ventilation. There is no dodging the fact that it is the most portable of any of the structures here shown; and the fact that it is used and preferred by men who own and operate 1,800 colonies most successfully proves that it must have merit.

ulating the supers that they go back on the hive whence they came. From the fact that they use a tent for extracting, and tote supers by man power, it might seem their methods are laborious and crude. We must judge a system by its results, for they not only operate 1,800 colonies but are among the most successful beekeepers in southern California.

Their hives and equipment are first-class in every respect. One of their apiaries is one of the prettiest in all the State. Four hundred colonies all in one location!

Orange as a Source of Honey.

When the explanation is made that they

are on a private orange ranch where no other bees can come, it is clear that this is possible. When the conditions are right the orange is an enormous yielder of honey, and some have said that it would be difficult to overstock; but that there is overstocking, even in orange, I have no doubt. In Riverside County alone, thousands of colonies from other States are moved into the orange districts every year, thus cutting down the yields per colony. The California beekeepers put up no complaint, because some of them move up into Nevada, Idaho, and Montana. It is a case of reciprocity.

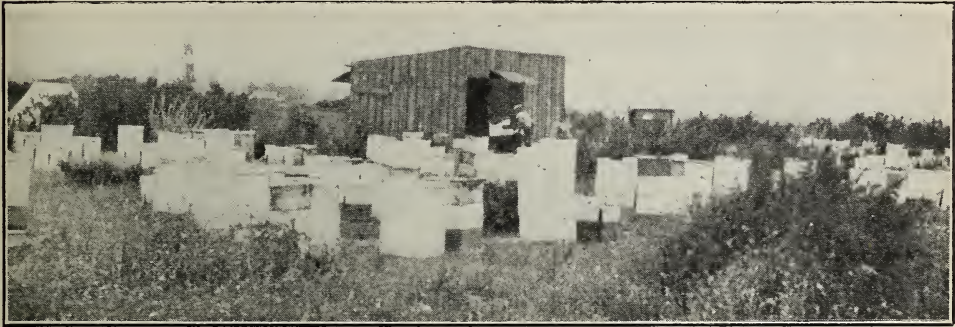


Fig. 10.—One of the apiaries of G. B. Larinan, Pasadena, who owns and operates over one thousand colonies. He uses permanent extracting-houses at each location, as he prefers to operate with an eight-frame power-extractor outfit, and have plenty of room for supers and equipment.



DURING the last 35 or 40 years it has cost me thousands of dollars going to conventions and visiting beekeepers, but in that way I have learned a good many things—learned from those who knew more in general about beekeeping than I, and also learned from those who were not so well informed, but who on some specific points knew more than I did. I have always endeavored to give credit to the one to whom credit was due.

Among the number attending the lectures for commercial beekeepers given at Cornell University there was an extensive beekeeper by the name of Orlando W. Bedell of Earlville N. Y. Mr. Bedell very kindly told me about a capping-press he had designed for the purpose of pressing the honey from the cappings immediately after they are sliced from the combs. He showed me a sample of the wax "cheese." It appeared to be very compact, almost as solid as wax, and perfectly dry. After taking a piece in my mouth and chewing it, I found it only very slightly sweet. Mr. Bedell told me that the plan removes practically all of the honey

PRESSING CAPPINGS DRY

*An Interesting Plan for Extracting
the Honey from Cappings by Means
of Great Pressure*

By R. F. Holtermann

from the cappings without, of course, injuring it in any way, as there is no heat.

In my own experience in allowing cappings to stand 24

hours to drain there is still $1\frac{1}{2}$ per cent of the total honey left in the cappings, and most beekeepers have as much as 2 per cent. Allowing for the actual depreciation in value, this averages a yearly loss to me of \$100. F. W. Lesser of East Syracuse, N. Y., who has seen the result of the work done with the press, speaks very highly of it, as does also that well known beekeeper, S. D. House of Camillus, N. Y.

How Operated.

The cappings fall from the knife directly into the circular "hoop" or cylinder made of staves; and when one hoop contains all it will hold it is shoved along under the press, and the honey pressed out. The "cheeses" handle like solid bricks and can be put aside until a convenient time for melting into solid cakes.

I must confess that after considerable experience, I do not like the capping-melter. With proper care, and everything in order,

the danger of fire is not great, yet there is some danger. And then the added heat in the extracting room at a time when the normal temperature is already as high as most people can stand, is a great nuisance. I intend using one of these presses this season.

The plan may be followed with two or more hoops or cylinders. Two furnish ca-

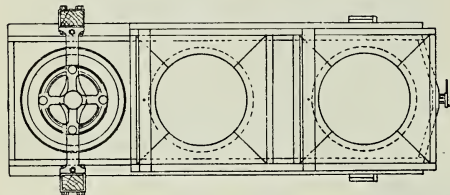


Fig. 1.—Top view of capping press, showing the construction of the support for the screw at the left.

capacity enough for one uncapper, while three are enough for two uncappers. When ready to begin work, a hoop is placed under its hopper, and the cappings fall into it just as into any uncapping can. They are leveled off occasionally so as to get as many as possible into the hoop at one time. Of course, meanwhile, they have a good chance to drain.

When the hoop is full it is slid along on the rack under the screw, a follower placed on top, and the screw turned down about as far as it can be turned with the hand.

About every 15 minutes the screw is turned a few times by means of a stout stick placed between the projections of the wheel on top of the screw until finally it will turn down no further.

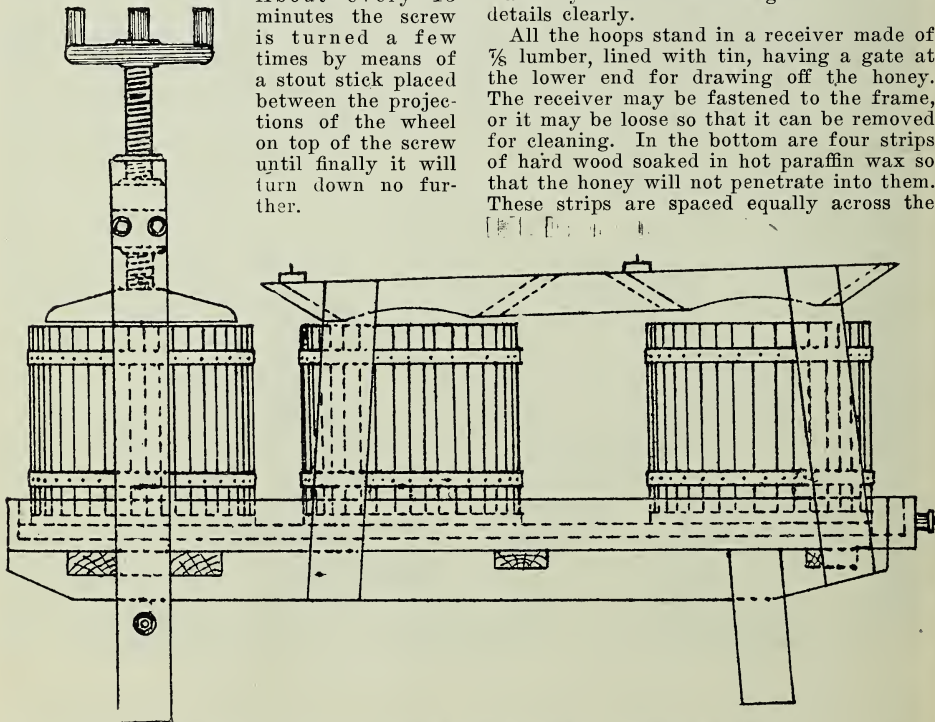


Fig. 2.—This is a side view of the whole press showing receiver, three hoops, screw, hopper, and sharp points for end-bars to rest on when uncapping.

When the second hoop is full the first is raised up, blocks placed under the edges, and the cheese pushed out by means of the screw. Then hoop No. 2 is handled the same as the first one.

In using the press last season, Mr. Bedell uncapped into a barrel which had holes in the bottom, and he allowed the cappings to drain until the next day, then transferred them to his press. In this way he secured about 40 pounds additional honey for every 1,000 pounds of honey he extracted, and he had his cappings in such a compact form

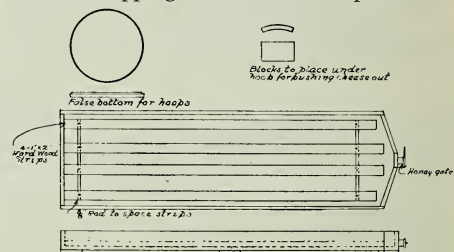


Fig. 3.—Tin-lined tray to go under hoops to catch honey. Cut greatly reduced in size.

that it required the cappings from four tons of honey to fill a flour barrel, the honey meanwhile being in a tank ready to market.

Details of Construction.

The press and all its parts must be substantially made. The diagrams show the details clearly.

All the hoops stand in a receiver made of $\frac{3}{4}$ lumber, lined with tin, having a gate at the lower end for drawing off the honey. The receiver may be fastened to the frame, or it may be loose so that it can be removed for cleaning. In the bottom are four strips of hard wood soaked in hot paraffin wax so that the honey will not penetrate into them. These strips are spaced equally across the

space equal to the diameter of the hoop. In this way the honey can drain freely.

The hoops are built of beech strips, $\frac{7}{8}$ thick and about $1\frac{1}{8}$ inches wide, spaced $\frac{3}{16}$ inch apart. Welded iron bands of $\frac{3}{16} \times 1\frac{1}{8}$ -inch material enclose the staves which are riveted to them. The hoops themselves are 15 inches high and about 18 inches in diameter. Each hoop has a false bottom, as shown in Fig. 4, which telescopes slightly into the bottom, as indicated in the drawing. The outside diameter of the false bottom is a little less than the outside diameter of the hoop, to permit the blocks to be placed underneath and give space for the cheese to be pressed out of the hoop. A loose follower covers the cappings for each pressing.

The frame is built of ash. Fig. 1 is a side view of the press, showing the receiver, the three hoops, the screw, the hopper to uncap into, also the sharp points for the end-bars to rest on while the combs are being uncapped.

The screw itself should be $1\frac{1}{2}$ inches, or $1\frac{1}{4}$ inches in diameter, 4 threads to the inch, with a hand wheel on the upper end having four projections so that a lever can be used between them for securing great pressure. A $\frac{1}{2}$ -inch bolt on each side of the cross-heads runs down thru the frame to give added tensile strength.

It has occurred to me that by having extra hoops the outfit would also make an excellent wax press for melting and rendering the cappings later on into solid wax, or for rendering old combs, the extra hoop to be used for melted wax only and never for pressing the honey out of cappings.

Brantford, Can.

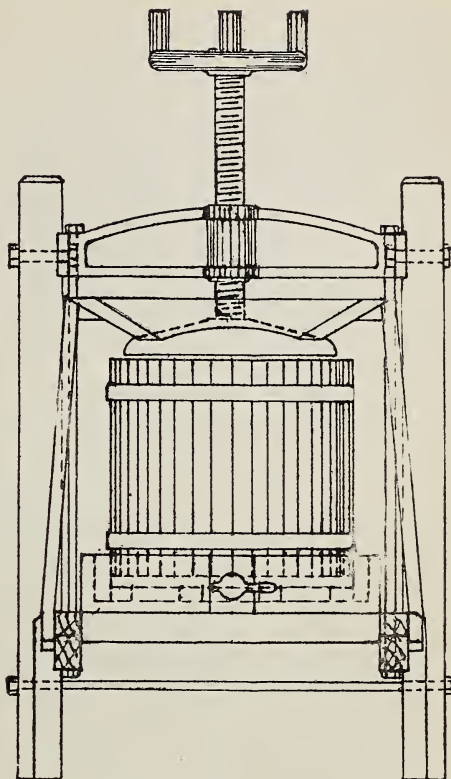


Fig. 4. End view. The other two "hoops" are supposed to be back of the one under the screw shown in front.

IN our locality the month of July brings the close of the honey flow. Sometimes it closes abruptly early in the month, while other years it may continue thruout the greater portion of the month, decreasing toward the end so that the final closing is indistinct.

If the date of the close of the honey flow could be definitely foretold, the proper management for comb honey at this time would be less difficult. It would then be possible to begin a concentration of the work in the supers at such a time that there would be few if any unfinished sections at the close of the season. If the honey flow should close abruptly before expected, the plan which I outlined last month in rapidly expanding the work in the supers might result in many poorly filled, as well as many unfinished sections. In such cases it would

CLOSING OF THE SEASON

Various Important Problems to be Considered in Connection with July Management

By Belva M. Demuth

have been better if all the work had been crowded into fewer supers; but, by being ready at any moment quickly to concentrate the work in the supers, loss in this way may usually be avoided. For this reason we anxiously watch the character of the work the bees are doing and the advancement of the clover. If, when a new super is given, the bees begin work in only a part of the sections instead of taking possession of the entire super and starting work in all of the sections, we take this as a signal to quit adding the new super below those already begun and to begin placing them on top, if more are added.

Concentration of Super Work.

At the first indications of the waning of the honey flow there is a radical change in the disposition of the supers. The problem now is to reduce the number of supers per

colony just as rapidly as possible until each has but one. Supers in which the bees have just made a start are transferred to the top, or stored until next year. If they contain a little honey the bees are permitted to clean them out, care being taken that the room in the shop in which they are exposed is partially darkened to prevent so many bees working on the combs that they would tear them down. Supers nearly completed are taken off, the sections of honey sorted, and the unfinished ones reassembled in supers to be returned to the bees. The supers are soon reduced to but one for each colony. We leave a little room in this super for the storage of incoming nectar, as the bees finish their work more promptly if new work is still in progress.

The next step in concentrating the work in the supers is the removal of all of them again as soon as half or two-thirds of the sections are sealed, sorting the sections as before, then returning the unfinished ones to the colonies that have been doing the best work at finishing. This leaves one-half or two-thirds of the colonies without supers after the unfinished sections have been returned; but no more comb-honey supers are given to these even though the honey flow may continue another week.

The extra hive bodies and brood-combs, which were taken away when the first comb-honey supers were given at the beginning of the honey flow and tiered up on specially prepared nuclei or weak colonies, are now returned to the colonies from which all the comb-honey supers have been removed. If these hive bodies are completely filled with honey, some of the combs are exchanged for empty ones in order that there may be room. We prefer to have the last few pounds of honey stored in these combs rather than in unfinished sections. Later all the comb-honey supers are removed and the sections sorted; but usually none are given back to be finished now, for it is difficult to induce the bees to finish and seal the last of the unfinished sections as the honey flow is closing. We extract the honey from these few remaining sections and put them on a few hives overnight to be cleaned out by the bees, after which they are stored away in tightly covered supers for bait combs the next spring. The colonies that were doing this last finishing work are now given their second hive body, with its store of honey, as was done with those from which all comb-honey supers were removed earlier.

Last Honey Usually of Poor Quality.

For some unaccountable reason the bees usually leave a portion of the latest-gathered honey unsealed, even when it is left longer than it would seem necessary to ripen it. Furthermore, this last-gathered honey is usually not properly ripened, no matter how long it is left on the hive. Honey that is extracted from the sections that remain unfinished at the last sorting is usually not only thinner than it should be but is also off in flavor. The same thing is noticeable

in our locality in producing extracted honey. The few pounds of late-gathered honey which the bees refuse to seal remain of an inferior grade even if left on the hive to ripen another month. When this unsealed honey is finally extracted separately it is found to be inferior in density and flavor.

Care of Comb Honey.

We formerly stored the finished supers of comb honey in the honey room in piles, the supers being separated from each other by means of $\frac{1}{8}$ -inch sticks placed between them for ventilation according to the directions usually given for storing the honey as it is removed from the hives. In addition to this we opened the windows freely during dry weather, the theory being that the abundance of ventilation would cause a further ripening of the honey, thus improving its quality. We found, however, that this treatment sometimes causes a deterioration of the honey rather than its improvement. If the honey is left in such ventilated piles until a cool spell of weather comes that lasts long enough to cool the honey very much, there is danger, when the weather warms up again, that the cold honey with warmer air circulating freely thru the supers may cause a slight condensation of moisture on its surface, which may be absorbed, causing the honey to expand in the cells against the capping. We have several times had many supers of beautiful comb honey ruined in this way when changes in temperature would have been less injurious if there had been no ventilation.

On the other hand, if the late summer and fall should be hot and dry, comb honey exposed to the air in this way for any great length of time loses so much of its aroma that much of the delicate flavor of the finest clover honey may be lost. When we realized these drawbacks, we changed the method of storing the supers. We now pile them in solid piles soon after they are brought into the honey room, closing the top and bottom of the pile tightly. The honey brought in during the latter part of the honey flow is usually piled in tight piles at once. The propolis on the edges of the supers in most cases seals the cracks between them so that moisture-laden air can not circulate among the combs and the aroma is well retained until the honey is finally cased for market.

The Useless Consumers.

Various methods have been proposed to reduce the amount of brood reared too late for the resulting bees to help gather the crop.

In comb-honey production this problem is fairly well solved by the bees themselves by their tendency to restrict the queen during the honey flow by crowding honey into the brood-chamber. When producing extracted honey, however, under our conditions bees are inclined to overdo brood-rearing during the latter part of the honey flow so that millions of workers are reared that are not used advantageously.

We formerly moved our apiaries in August to a region affording a fall honey flow

in order to utilize these late-emerging bees. In localities which do not afford a fall honey flow colonies run for extracted honey may be divided at the close of the honey flow, if increase is desired, as has been suggested by Mr. Holtermann. This would make good use of the extra bees at this time, and, if each half of these big colonies is given a young queen and plenty of honey early in August, they should both be in prime condition for winter, each fully as strong at the beginning of winter as the undivided colony would have been if left alone.

Some producers of extracted honey crowd the bees in the supers when the close of the season approaches, as is also done in comb-honey production. In doing this they probably save considerable honey that would have been used in superfluous brood-rearing, and also gain the advantage of having the crop of honey stored more compactly in the supers.

In Conclusion.

In this connection, I am reminded that next month, so far as getting the bees ready is concerned, we begin to prepare for the honey flow of 1920. As I said last summer in the first of this series of articles, "The beekeepers' calendar should begin in August," by seeing that each colony is in proper condition to rear sufficient brood for its winter cluster. The subsequent steps in the year's work leading toward the few weeks of harvest next year, which I have attempted to outline briefly in Gleanings during the past year, are now due to be taken again. The many variations in details in fitting a system of management to the peculiarities of the season will bring the usual perplexities and worries as well as pleasant surprises, but the eternal hope that next season may be the best ever is sufficient to tide us over the rough places.



THE disturbance in the economic life of this and other countries as the result of the transition from peace to war-time pursuits, and back again to peace conditions, has upset the plans and calculations of a multitude of individuals who are now earnestly seeking an honest and honorable means of gaining an acceptable living. All too many who volunteered or were called away from their peaceful pursuits to engage in the world war have returned to find their occupations gone.

Undoubtedly many manufacturers who changed their plants to meet the exigencies of war have sustained great loss in prestige and markets, rendering it impracticable or impossible to give employment to all their former employees. Moreover, many soldiers having had a taste of the outdoor and simple life, and having realized the blessings of pure air, sunshine, and untrammelled movement, are undoubtedly reluctant to return to the countinghouse, office, or factory for an occupation or employment. Happily the time has come to turn the "swords into plowshares," but to accomplish it involves many readjustments and transformations.

In casting about for a healthful and invigorating occupation—one in which a good-

DOES BEEKEEPING PAY?

Beekeeping is Not a Get-Rich-Quick Scheme, But a Good Business Proposition for those in Good Locations

By Orel L. Hershiser

[Many letters have come to us recently from returned soldiers and others, asking whether beekeeping really pays as a source of income, or whether one must have some other business as a side line in order to insure a good income and a credit in the bank. We accordingly asked Mr. Hershiser to discuss the subject in Gleanings. At first thought it may seem that possibly he has made out too good a case for the beekeeper; yet it will be noted that when he speaks of very large returns he admits them near the high-water mark, so that, on the whole, we believe that, if our readers will carefully weigh his words, they will agree that he has not painted the picture in too rosy a hue.—Editor.]

ly share of the compensation is to be realized in the pleasure of the work—beekeeping may well be given careful consideration.

The demand for honey is on the steady increase, and has more than kept pace with production; and an overproduction is a possibility too remote to be considered. Better methods of distribution which are in the process of evolution will facilitate the profitable marketing of all the honey that is likely to be produced.

Recreation of Beekeeping.

Work with the bees is as much recreation as toil. The development of ways and means to induce the bees to accomplish the most for their master gives mental employment to those of scholarly taste. Interest in building up the colonies in preparation for the honey flow develops into fascination as they reach the highest point of prosperity and enter upon the harvest of sweets. When daily watchfulness is required that super room be provided, and the hives are built three or more stories high to hold the treasure of sweets that his skill has made it possible to save from waste, then may he commence to count his financial gain.

A prosperous apiary, with hives tiered up containing a bountiful crop of honey is

a most inspiring sight. The hum of the bees as they steadily pour into the hives, intent only on garnering the precious and wholesome treasure from the blossoms of the fields, is music to him, and his occupation of turning the God-given instinct of the bee to work for the benefit of mankind is a pleasure most satisfying.

The specialist beekeeper has outdoor employment in abundance in the temperate climates commencing with the first warm days of spring, and continuing until the beginning of winter weather.

Beekeeping as a Source of Livelihood.

However, the uppermost question in reference to beekeeping, in the mind of the average inquirer, is, "Does beekeeping pay in

penses of operation are not given, but they would be comparatively trifling, probably coming well within \$1,500, and would consist chiefly of containers for honey, complete hives for increase, and necessary help and transportation.

As a means of money-making, the value of this investment to the beekeeper may be readily calculated if we know or assume the percentage of profit on his capital that will meet his expectations. Suppose he is satisfied with 25 per cent gross. Then his investment in bees and equipment would be valued at \$36,264, as 25 per cent of \$36,264 equals \$9,066; and his original 280 colonies have a valuation of \$129.50 each, as 280 is contained in 36,264 about 129.50 times. This seems high for bees; but it also seems difficult to get away from it except upon the theory that the labor and skill of the beekeeper are the chief factors in the production of a crop of honey.

Suppose we examine the proposition from another angle, and imagine the beekeeper does not object to being classed as a "profiteer" and will be satisfied with nothing less than 100 per cent gross profit. Then if he makes \$9,066, or 100 per cent, on 280 colonies of bees, they must represent a capital of \$9,066, or \$32.37 per colony. While last season's crop of honey was not abnormal, the jobbing price was higher than may be expected in the future; but the percentage of profit on the valuation of \$32.00 per colony may be considerably reduced before it ceases to be attractive to the beekeeper.

Let it also be said that this case represents something near the high-water mark



Hives tiered as high as this are a common sight in a good locality.

dollars and cents?" for, no matter what compensation in pleasure and healthfulness it affords, the monetary rewards must be sufficient to satisfy the requirements of the individual who is seeking a good occupation for a living.

To answer this question, let us take an example of a real beekeeper in a good but by no means exceptional location for honey production, operating not so many bees but that he can, if necessary, do nearly all his work single-handed, and therefore not menaced by strikes or other labor troubles—a scientific and up-to-date beekeeper, if you please, and such a one as beginners would do well to emulate.

Returns at Times Very High.

For such an example I have before me a report of a beekeeper of Michigan who last season produced, from 280 colonies of bees, honey that sold for \$7,486.87—an average of nearly \$27.00 per colony, while some of his best colonies made as high as \$78.00. Besides the honey he produced 350 pounds of beeswax and increased his apiary by 45 colonies. It seems fair to place the value of the 45 colonies' increase, especially in this beekeeper's hands, at \$32.00 per colony, which would amount to \$1,440; and the beeswax, at 40 cents a pound, net, which would amount to \$140, making a grand total gross income from the apiary of \$9,066—an actual average of over \$32.00 per colony. The ex-



Another paying proposition.

in beekeeping, but not the highest. Others have realized larger returns for last season's crop. Dr. C. C. Miller is acquainted with a man who has produced a higher average in dollars and cents per colony when honey was only about half the prices of 1918. These are reliable illustrations of the possibilities of beekeeping in the hands of those operating such a number of colonies as may be properly cared for with little outside help, and, of course, represent above the average in beekeeping. They serve to show that,

even with a much lower average of profit, beekeeping in the hands of the intelligent and well-equipped operator is an attractive proposition, and, accordingly, what ought to be a satisfactory return on the assumed valuation may be confidently expected. Moreover, bees are worth more to the beekeeper than to persons who do not know how to handle them profitably, and for that reason they may often be purchased for much less than their intrinsic value in the hands of the specialist. There are few if any lines of rural husbandry wherein the human factor adds so much of value to the object that is being exploited as a means of livelihood.

Choosing Good Locations.

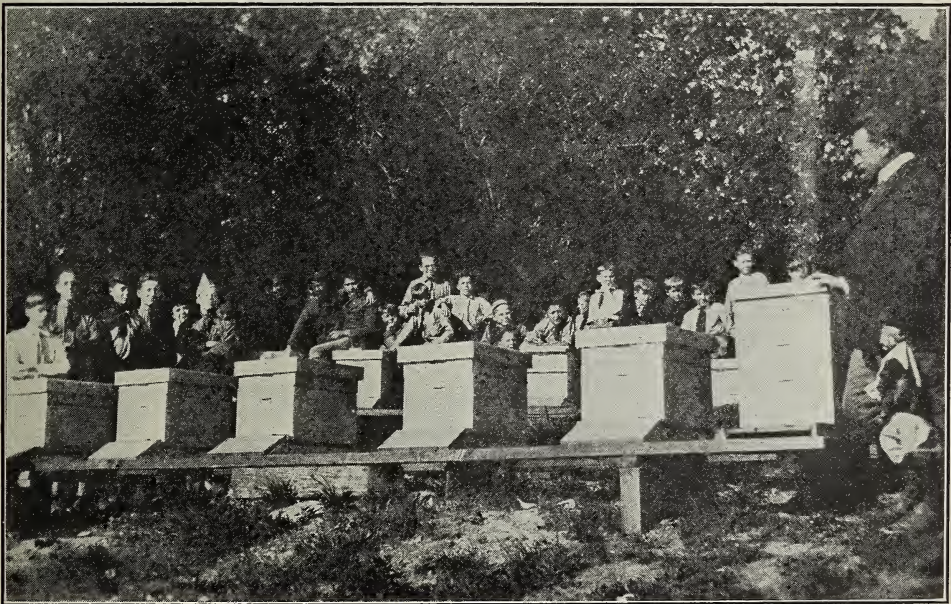
Several factors contribute to success in beekeeping. Location is one of them. The bees should be located within easy reach of plenty of honey-producing flowers. Such locations are common—so much so, indeed,

grove, palmetto, and many other honey plants are common, often two or more of them in the same locality. In the Northeastern States considerable buckwheat and goldenrod honey is produced.

The value of a location is enhanced if it has several abundant sources of honey which follow each other in blooming period. Yet, if a locality affords one or two varieties of honey-producing plants that may be relied on, and that occur in great abundance, such a location would be preferable to one with a small area of each of a greater number of varieties. Certain localities in New York State are so much devoted to growing buckwheat that beekeepers resident there make a specialty of buckwheat honey. The same is true of other honey-producing plants in other localities.

Importance of Personal Factor.

Then there is the human factor. To make a commercial success of beekeeping, not



Many schools now teach beekeeping. This is the Montezuma Mountain School mentioned in Just News.

that in many parts of our great country, and other countries as well, it is not at all difficult to select good locations.

We have in the Northern and Eastern States the great clover belt which extends, roughly speaking, from the latitude of the Ohio River northward to and beyond our boundary, and from the Mississippi River eastward, within which poor locations are the exception. Then there are the great alfalfa regions of the semiarid West, which are wonderful honey-producing areas. In certain localities in California and Florida orange-blossom honey is produced in quantity. In certain sections of the Southern States cotton, sweet clover, tupelo, man-

only are book knowledge and experience necessary, but also especial characteristics of the man. He will surely succeed if he has the adaptability, or what might be more specifically termed the beekeeping instinct. He must be industrious, attentive to details, possess some mechanical ability, be a close observer and something of a naturalist.

His industrious tendencies will impel him to build up his weak colonies and induce all his queen bees to reach the highest possibilities of reproduction of worker bees in time to avail himself of the full benefits of the honey flow. He will have a well-laid-out workroom, and tools and equipment provided, with a view of accomplishing the maxi-

num of results with the minimum of exertion. He should be familiar with ordinary mechanical tools, and be able to make necessary repairs to hives and other equipment.

He will know each variety of flower on which he depends for a crop of honey, when and how long it may be expected to bloom, and what are the probable effects of weather on it. He will know when the bees are preparing to swarm, and what measures to take to prevent or control swarming.

He will know the life history of the queen, the workers, and the drones, and what are the functions of each, and a multitude of other details. In fact, a specialist beekeeper is sure to be a well-rounded-out

better off financially if he had given the farm away when he inherited it, and had devoted himself exclusively to beekeeping instead of dividing his time and attention between the farm and the bees.

Best Strains of Bees Needed.

To reach the highest measure of success in any occupation, the best means to attain the desired end must be employed. The farmer specializes in the crops best suited to his soil and climate; the horticulturist, with those varieties of fruit that reach the highest perfection in his locality; and the livestock specialist, with the breeds of stock best adapted to his purpose. The beekeeper is no exception to this rule. To realize the highest percentage of profit, the best strains



Many returned soldiers and nurses are thinking of taking up beekeeping.

intellectual man or woman, whether having had good educational opportunities and advantages or not; and let it be said in passing that the necessity of all these accomplishments in the successful beekeeper may be given as the reason for the higher average of his intelligence.

Some men have the beekeeping instinct so highly developed that any time they may devote to other money-making activities is against their financial success. As an illustration, a beekeeper of New York State, who enjoys an international reputation for his success as a beekeeper, and who inherited a valuable farm of some two hundred acres, maintains that he would have been

of bees must be employed—those that are markedly industrious; that resist disease; that winter well; that are gentle, and easy to manipulate; and, if comb honey is to be produced, bees that cap the honey white.

How Best to Gain Experience.

The prospective beekeeper should not allow his ardor to get the best of his judgment. Too much haste is not speed in acquiring proficiency, and in making beekeeping a commercial success. One way to learn the business is to commence with not to exceed five colonies, and with these, put into practice the theories and practical directions that are obtainable from text-books, bee periodicals, and government bulletins on

beekeeping. When the would-be beekeeper learns by practical experience that he can manage a few colonies profitably he can enlarge the business at will and with success assured.

If he desires to become well qualified in as short a time as possible to produce honey in quantity, there is no better way than to engage in the work with a specialist for at least one season. This practical experience will decide whether the student possesses the essential natural qualifications. Also a knowledge of desirable equipment of hives and devices, and how properly to use them, will have been secured, which will prove to be of great value to the beginner.

Danger of Overstocking.

In establishing an apiary, due regard should be had for the moral rights of other beekeepers already established. If a beekeeper is occupying a location with as many bees as it will profitably support, a due observance of professional ethics would deter another from occupying practically the same location. The beekeeper who encroaches on a well-stocked location will necessarily have to put up with much smaller crops of honey than he would if he placed his bees in unoccupied territory. Self-interest ought to be sufficient incentive to prevent overstocking.

Prosperity of Beekeepers.

Are beekeepers as a class prosperous? There are some indications that they are, and are becoming more and more so from year to year. Beekeepers' conventions attract beekeepers long distances, and a few years ago a special car was occupied by them alone on a trip from Chicago to Los Angeles, Cal., to attend a convention of the National Beekeepers' Association. Many educational institutions maintain an apicultural chair and department. Apiculture is recognized and fostered by liberal appropriations by the United States and other governments. A "straw" that indicates in some degree the prosperity of beekeepers was noted by a careful observer at a recent beekeepers' field meeting in western New York; that is, out of nearly one hundred automobiles owned by the beekeepers who attended, and which conveyed them to the meeting, very few of them were of the familiar Ford make. Undoubtedly this very serviceable car for ordinary use by the apiarist had been left at home, and the more classy cars used for public appearances.

Easy to Succeed.

Beekeeping as an occupation has developed rapidly from an avocation to the dignity of a vocation, and all within the past sixty years. Within the memory of many veteran beekeepers the activity of the apiarist, with few exceptions, was confined to the one home apiary; now specialists with a string of apiaries are common. Within that time the most valuable aids to commercial beekeeping have been invented and brought into common use. Without these the high

degree of success attained would have been impossible. Sixty years ago there was not a factory of importance that made a specialty of beekeepers' supplies. At the present time there are numerous well-known houses turning out vast quantities of material for the use of the beekeeper that reach into every quarter of the globe. The science of beekeeping is also enriched by several high-class trade journals, and many books and government bulletins. Indeed, the cumulative knowledge of the science that is now available is so abundant that, to become proficient, and make beekeeping pay, is comparatively easy in these later years.

Kenmore, N. Y.

[Among the beekeepers we have known, and who have made this business a source of livelihood, we remember only one who actually failed, and his failure was due to drink. On the other hand, we have known many people who have been carried away with enthusiasm for a short time, starting with a few colonies, only to become discouraged because of a poor honey flow, and soon drop out of the game. Beekeeping, extended over a number of years, certainly does pay, and there are enough extra-good years to balance fully the poor ones. We recommend beekeeping as a good business proposition for the man who is willing to spend the time, labor, and capital necessary.

Following are concise statements from other noted beekeepers whose opinions carry considerable weight.—Editor.]

* * *

It is just 50 years since I made beekeeping my principal business. For some years I ran a small farm as a side line, not daring to risk my success with bees alone. I am located in a fairly good section—not the best, but better than many other places; and now looking back I can see that I should have had much better success if I had confined myself to beekeeping alone. Some years beekeeping, like other kinds of business, pays poorly; and if one can turn to something else it helps out.

Middlebury, Vt. J. E. Crane.

* * *

As a result of my own experience, and of travel among quite a number of beekeepers in several States, I find that, if one's ideal of success is something more than the mere accumulation of money or wealth, beekeeping does often pay quite well. However, the majority of those engaged in extensive commercial beekeeping show little evidence of wealth. For wealth alone, choose some other calling. The past two years have been exceptionally profitable; but we shall never see the like again. More effort must be devoted to the extension of marketing facilities or disaster will overtake us.

Meridian, Ida. E. F. Atwater.

* * *

If you like bees and are interested in the study of them you can make beekeeping a paying business the same as farming, poul-

try, the mercantile business, or any of the professions. However, to make it a success, financially or otherwise, you must put your brains and brawn into the business, especially good common sense. A lazy beekeeper, or one looking for an easy way to make money, had better take up some other work, as he will get badly stung in beekeeping. Do not expect, when you have bought bees, that you will begin to realize profits. Expenses are high, misfortune often follows, and disease comes. Not all seasons are favorable for a good crop.

Lamar, Colo.

Cora D. Polhemus.

* * *

I am inclined to believe that, under favorable conditions, commercial beekeeping may be made a financial success. Disease is, undoubtedly, the greatest hindrance; but by proper precautions and prompt action upon its appearance it may be kept under control. I believe the success of any undertaking is largely up to the person in charge, as is evidenced by marked successes in practically every business or profession.

Yes, I would say that, to the ambitious person, the chances are good. Find a good location, get a suitable equipment, practice the most approved methods, and success ought to be yours.

Ira D. Bartlett.

* * *

Yes and no. Like every other line of human endeavor it depends upon the man. Some persons never grasp the essentials, others get them quickly; the first never succeed while the latter do if other things are equal. The "other things" are good location, sufficient capital, and salesmanship.

The necessary knowledge is best acquired thru work with a professional, coupled with a study of the history of the art. A knowledge of what has gone before is almost as important as knowledge of what is done now.

Arthur C. Miller.

* * *

Yes and no. Yes, when there is no serious disease to contend with, and a good dependable location, reliable, competent assistance, and prices remaining above 12c to 15c. No, with prices as low as previous to the European war, and incompetent assistance.

Our sage ranges are not as good as in previous years on account of frequent mountain fires and inferior honey-producing plants and weeds crowding out the former superior honey-producing plants, and a great percentage of range wiped out or destroyed entirely. In some places it will pay only as a side line.

M. H. Mendleson.

* * *

Yes; but it does not pay everybody. Lack of knowledge, lack of application, and lack of capital are the three rocks on which many a rosy dream has been shattered. You will notice that the most successful beekeepers are the ones who have gone thru as much training as would fit a man for any of the professions. The ones who have succeeded

in acquiring a competence in beekeeping would have done well in almost any line.

Albany, N. Y.

Charles Stewart.

* * *

With a favorable location, and careful attention, the beekeeping business for an average of years will pay the commercial beekeeper; but if the let-alone methods are used, as is too often the case, then do not start beekeeping.

N. E. France.

* * *

This question can not be answered in a word, yes or no. I have often correctly concluded, after a week or two of observation, that a young man with me would or would not succeed in beekeeping. It depends upon the individual, his circumstances, and his location. I refer to the latter, for a beginner has but little conception of an average location. There are, perhaps, more shipwrecks and heavy losses in beekeeping than in any other agricultural pursuit. The aspirant must be intelligent, thoro, prompt, observing. He should have read one or more good bee books, and then begin in a very small way, say two or three colonies; or have spent a season with a successful (not necessarily extensive) beekeeper. If a living depends upon the returns from the business, then there must be in reserve enough means to live on for a year without returns. A good way is to combine with something else until success warrants otherwise.

Brantford, Ont.

R. F. Holtermann.

* * *

If one is or will become temperamentally fitted to care for bees, and will learn the fundamental principles of management, beekeeping pays. What one has done, others can do; and not one but many have proved that beekeeping pays. In what other line of agriculture can you work outside in fine weather, inside in bad weather, and have six to eight months' vacation a year, as in the Northern States? A rosy picture, you say. Yes; and if one will be businesslike, the majority must admit that the picture is true. Maximum returns can not be secured unless our management is correct.

F. Eric Millen.

* * *

Others have made a commercial success of beekeeping; so can you if the business is one you hanker after. It will give you all the food, clothing, and shelter that's good for you. So will many another business. But if you're a born beekeeper no other business will give you as much enjoyment added to your living. I know. I might have made more money at some other business, but I'd have been dead long ago. I've just started in on my 89th year, and there's just as much fun in living now as there was when I began keeping bees 58 years ago. More; for I've better health than I had then. The beekeeper has one handicap that the raiser of other stock has not; he has no legal right to his territory. I'd like to live to see that handicap removed, as it is in some other countries.

C. C. Miller.



ANNE LESTER AND DADDY LOWE, BEEKEEPERS

By Grace Allen—Chapter VI

"DEAR Robert: Nations may rise or fall, but the world shall have honey.

Daddy Lowe and I have seen to that—we and the bees. We have extracted. And wouldn't you, over there making the world safe for democracy and honey-eating, like to hear all about it? I thought so, it will make such a cheery contrast to mud and cooties. Do, by the way, tell me if the writers have been justified in putting so much emphasis on these two features of the war; they have gradually come to be the whole background of my mental pictures. Always, in my mind's eye, you are in the mud, tho you haven't made much reference to it yourself. But tho I picture an entire army fighting cooties, I admit that you, my dignified brother, remain an ever dignified exception. Perhaps you better not, even tho accuracy might require it, disillusion me—let me keep my sisterly pride.

"Well, to get to the extracting job. First of all, it really is a job. We talked about it a lot as June closed and July came, and at last Daddy Lowe said, 'Now.' So on Tuesday of last week, the second Tuesday in July, we put on the bee-escapes and otherwise made ready. Bee-escapes, Captain Brother, are clever contraptions designed to let unsuspecting bees pass down, out of their treasure vaults into the nursery, and not let them back. The intention is to have the honey that the beekeeper is going to take as free from bees as possible at the critical moment of taking. The next morning we took it off, 'we' meaning Daddy Lowe. I hovered around, of course, all eyes and 'Oh's' but the only practical thing I did was to open the screen door of the honey-shed when he came rolling in the wheelbarrows of honey.

"After it was all in, piled on one side of the room, the performance started. Mrs. Lowe came down to see the start, as she has always done, they say. She didn't stay long this time, but just her being there for a little while seemed to sort of consecrate the place. She sat in the little rocker that stays there all the time, to entice her out occasionally, looking around and blessing things with her look. I gave her a sample of the new honey, and she said it was the best they had ever had. Mr. Lowe laughed and said she had been saying that for twenty-five years, but she insisted this really was the best. I don't know how she could tell—she eats about as much lately as a disembodied spirit. But Mr. Lowe swung round, as he always does, to back her up most gallantly. She was undoubtedly right, he told her, this really was fine honey, and anyway the last of anything was always the best—good honey or happy years or almost

anything. And she said it over after him, with such a gentle smile, 'Yes, the last is the best.' "

Here Anne Lester laid down her pen and looked out of the window. Her own wise young instinct had told her to make her letters only chatty and cheery, never depressing, even before wise older people began advising it. But she was frankly worried these days, and Mrs. Lowe's tone and look haunted her. She sat perfectly still a long time, then with a little sigh started again.

"I don't mind admitting to you that the extracting of honey isn't quite so much to my taste as the yard work with the bees themselves. It is much more tiring, and it's more like work in every way. The other gets to be like work, too, when there is really a lot to do, and you must keep going, hive after hive, in a business-like way. But even then, it has a certain charm and fascination that holds me steadily to it. I hereby give you warning that after you come home, I shall continue to keep bees. Which means, of course, that I don't want to go back to the city, and I don't, tho I don't expect you to give up your work at the bank and become a farmer for my sake, like Theodore. That's the difference between brothers and Theodores! Anyway, I couldn't be happy if you gave up the work you enjoy so I could have one I enjoy. But I shall want to move as far out as seems reasonable for you to commute, where we can have a little place with country things around—great stretches of green, and climbing roses on the fences, and cinnamon vines and honeysuckle. I want some hollyhocks, too, and lilacs in the dooryard blooming, and things like that. Yes, and fruit trees and grapevines and strawberries and mint and an asparagus bed and things like that. Then I'll have my white-painted hives on green grass, under the fruit trees, with hollyhocks and roses all around; and when you come home, tired and hot and soulsick, from your noisy city with its shut-in old bank, I'll give you cold clinky tea with mint in it, and quietness and beauty, and let you listen to the humming of my bees. And after a bit you'll feel as tho something lovely had touched you, with a blessing in its hand.

"I seem to have run off my subject again. I really like a subject that is easy to run off from, like a road with leafy lanes and cool pebbly creeks leading off. It's easy enough to come back.

"Here, then, is how you extract honey. First you take a big comb, all sealed over, or mostly so, so as to be sure it is 'ripe,' then you rest the end with gentle emphasis

on an upturned nail that rests on a wooden arm that rests across a big empty can that rests on a coarse strainer-like wire that rests on another empty can. Have you the whole restful picture? Next you take your uncapping knife, which has been heating in a pan of hot water on the stove near which you are standing, and neatly slice the capings off the honey, first one side then the other. The aforementioned upturned nail steadies the comb while you cut. The capings drop into the empty can, while the honey still in them runs on down thru the wire into the lower part. Then you put this drippy, uncapped comb into your extractor, which is another big empty can, about as high as your waist; at least, it would be empty if it didn't have various things in it—baskets made of stout wire and something else, tin, maybe, or something galvanized, and parts that fit into each other and turn. There's a handle—it's on the outside—and when you have a comb of honey in each of these baskets and turn this handle fast enough, out whirls the honey.

"Do you remember about centrifugal force, Robert? I do. We had it at school. There were twins, centrifugal and centripetal. The books said one of them kept the earth from flying off into space and the other kept it from being drawn into the sun and burned up. I knew which was which for a while, but it was hard to keep them separate long at a time. Now I know, again, and will never have any more trouble with the twins. Centripetal force doesn't help us a bit in extracting, it's the other does the work. It doesn't do it all, tho. Somebody's got to turn the handle.

"Well, after the honey is thus centrifugally extracted, the combs are returned to the bees. You have to be careful to put them back on the hives towards evening, or the bees, smelling the fresh honey, get excited and lawless and start robbing one another's hives. Isn't it a pity bees and nations do that kind of thing?

"Later the honey is strained and put into barrels or big cans or little cans or bottles. We're doing a lot of that work now, and putting on labels. Mr. Lowe ordered some new labels last week and I told him he ought to make them read, 'Anne Lester and Daddy Lowe, Beekeepers.' Today he tells me he did! I don't know whether he's joking or not, but I do know the 'Daddy Lowe' part would make a hit around here, for that's what so many people call him.

"Now you know all about extracting—maybe! Anyway you know enough to see that I'll need an extracting room at that little country place we're going to have when you come home. You can't tell, I may get to be such a big producer that I'll have a power extractor. Yes, they do have

such things. Isn't it wonderful? We never knew, and most people never guess, what a big business honey production is. The only trouble, tho, with my having a power outfit is that I'd have to have somebody around to run the machinery. I can say that to you safely—no danger of your starting at once to be an engineer. But I'd be scared to say it to Theodore!

"Speaking of Theodore, tho, I honestly think you do him an injustice when you refer to him as a slacker. He isn't that, Robert, he's just Theodore. You know as well as I what that means. He's like the darkey woman buying her mourning wardrobe. Remember her? When the clerk suggested that it wasn't really necessary to include black underclothing, she answered rebukingly, 'When Ah mo'hns, Ah mo'hns.' That's Theodore to a T, and on thru the rest of the letters. When he does a thing, he does it. That's why he's out here, learning to farm! And when he believes a thing, he believes it. That's why he couldn't volunteer. You and I can't understand his viewpoint—to us it looks, as you say, 'absurd and puerile'—we can't see his side at all (if indeed, there really is such a side). But surely we must honor the quiet and courageous stand he has made for what he thinks right. He knows only too well how we and practically all his friends feel, but that doesn't seem to matter. He's being loyal to something inside. That isn't cowardice, Robert, it's courage.

"Then the really distressing part has just come. He decided to accept the draft without any claim for exemption because of these convictions, answered his call—and has just been found unfit. His heart didn't stand the examination. Now don't joke, dear, and say I could cure his heart! It isn't any joking matter for a young man like Theodore to find he has something radically wrong with him. I am trying to persuade him to give up this farm notion, and go back to the office, where the work is so much lighter. He merely looks hurt and starts talking about crop rotation and silos, certain other subjects being forbidden. And he isn't a bit interested in either of these, and he hates perspiring and getting his hands dirty. But at that he's some Theodore, and you shall not malign him. Which surely reverses our attitudes, from the time you first brought him home with you!

"I wish you could see how quietly the level sunlight lies along the hills. The world is utterly peaceful here, utterly lovely. Some day it will be so over there. Then you'll come back and tell me how you helped make it so, while we drink that iced and minted tea by the hollyhocks in my own beeyard.

Lovingly,

Anne."



THE HONEY PUMP

Honey is Not Injured by Pumping. Later Heating Expels Air

The more honey is agitated, the more quickly it will granulate. This is why extracted honey, as a rule, granulates more quickly than comb honey from the same source. This is due principally, no doubt, to the honey flying out in fine streams against the side of the extractor. In this way considerable air is introduced, which seems to be unavoidable. Later heating expels this air, or a large part of it.

Theoretically, a pump should further agitate the honey. How much difference this makes from a practical standpoint we have never been able to determine. We honestly feel it is a small matter and that the pump itself when working properly does not cause any additional cloudiness, or tendency to granulate.

If there is a leak on the suction side of the pump, considerable air will be introduced into the honey. This we have found by actual experiment. Or, if the capacity of the pump is much greater than that of the extractor, so that a good share of the time the pump is sucking air, there is no question but that considerable air is introduced into



Apiary of H. T. Wagner of Redlands, located in Live Oak Canyon.

the honey; for it is only necessary to watch the delivery pipe from the pump in the honey-tank, to see the quantity of bubbles of air rising to the surface. The larger bubbles come to the top, but the smaller ones remain in suspension. The ideal arrangement is to have several inches of honey always in the bottom of the extractor. Practically speaking, it is not always possible to do this, but it is an easy matter to slip the belt off the pump in case the latter gets ahead; or, if it is continually ahead, the pulley on the extractor that drives the pump, should be slightly smaller, of course. It is difficult to make these pulley ratios just right for all conditions. For example, some beekeepers do not care about extracting the combs

clean. They get nine-tenths of the honey, in perhaps, three-fourths actual running time of the extractor, and rather than take 25 per cent more time to get the additional 10 per cent of honey, they will let it go, figuring that the bees will simply put more honey on top, and that there is no need in extracting the combs clean. Nearly everyone who has given the matter any study, however, feels that it is better to extract the combs clean every time.

The difference in the thickness of the honey does not greatly affect the proper speed of the pump in relation to the speed of the extractor; for the thicker the honey, the longer it takes to extract the combs clean and, of course, the longer the pump has to do its work. The thinner honey, which can be pumped more quickly, takes less time in the extractor to extract.

H. H. Root.

Medina, Ohio.

RESPECTS BEES

Will Find Queen as Mark Twain Climbed Alps

A short time ago Charles Staff wrote us that he had five hives of bees which he kept, not for honey, but for pollenizing fruit trees, melons, and cucumbers, and he asked if it would be all right to permit swarming and simply keep the old colonies. It seemed such a pity to lose those swarms that we suggested preventing swarming and at the same time running for a little extracted honey, as suggested in the June Beginners' Talks. To this he replies as follows:

"Thank you very much for your letter of May 2nd, and the advice contained therein.

"I had a few friends at my house yesterday and we discussed this suggestion of yours about finding the queen and removing her. I proposed that we should all do it in a group or a swarm, as it were, or en masse. We conservatively estimated that there were about ten million bees in the hive, and it did not seem quite safe for any individual to tackle that whole bunch and forcibly remove the queen. I thought that probably if there were a great many of us, some one might succeed in accomplishing the result, even tho the fatalities might be high. All of my friends, altho some of them have been "over the top" on the other side, one and all gently but firmly refused to entertain the proposition, so the queen still remains where she is and we have decided that we will not remove her.

"May I, in all politeness, ask you what you think the bees are going to do if I should attempt to follow your advice? I want you to understand that the bees I

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have are good healthy, husky bees, and they do not tolerate any undue familiarities. There is only one hive that I have which I would attempt to handle in the way you suggest and that is the one that contains the dead bees. I am quite willing to find the queen in that outfit and remove her. The one word in your letter which stands out and appeals to me most strongly is the word 'run,' when you make the suggestion that it would seem worth while to 'run for extracted honey.' Just eliminate everything else in your letter and leave the word 'run' and I will say 'amen.' For the rest, dear brother, nothing doing!

"Perhaps you might wonder from the foregoing why I have any bees at all. I will confide to you that up to a month ago I had a man working for me that had the strange hallucination that one could play with the bees and get away with it, and he it was who brought in the hives and looked after them. As far as I am concerned, they are an inheritance. All I am wondering is how long they will stay on the premises if I am willing to leave them strictly alone. I would like to have them stick around to fertilize the fruit trees and the melon vines. Whatever honey they make they can keep, or anybody else is welcome to it if they have the nerve to come and get it.

"I am a subscriber to 'Gleanings in Bee Culture,' and I love to read about the bees; but as for finding the queen and removing her, I will look for the queen the way Mark Twain climbed the Alps, i. e., with a telescope. Charles Staff.

"Royal Oak, Mich."

IDEAS ON EXTRACTING

With Suitable Knife, Deep Combs Easier Extracted than Shallow

A correspondent, who has been an extensive comb-honey producer for many years, writes that he would like to run a little more for extracted honey and wishes advice on the style of combs to use for extracting. He states that he has quite a surplus of comb-honey supers which would go together in pairs to just fit combs of Langstroth depth, but has been advised that shallower combs would give better results, because they are more easily uncapped and may be used with his brood-chambers which are Quinby depth without excluders.

I have gone very carefully into the claims of those who advocate shallow frames for extracting, and with all respect for their wisdom, I can see only two or possibly three advantages they may have. When used over deep brood-combs they may enable one to dispense with excluders to advantage. When the colonies are weak, or when short

light flows of different varieties are to be kept separate, their smaller capacity may be an advantage. They are also more convenient for beekeepers who lack physical strength and do not run a large enough business to employ labor. Any advantage they may have over a deeper comb in uncapping is the fault of the knife and not of the standard comb. All will remember the old riddle, "How long should a man's legs be?" The answer is, "Long enough to reach the ground."

The disadvantage of shallow combs in extracted-honey production is obvious: So many more pieces to handle for the same amount of honey produced. Whether they may be used without wires and cost slightly less need scarcely be discussed when one considers that there is practically no limit to the length of their life. And as for time-saving, one of the best "records" in extracting I ever made was with supers which held 100 pounds of honey each, in 11 combs. It was a four-frame non-reversing extractor turned by hand; but the quantity of honey coming from each set of four enabled us to roll up a record which would do credit to modern machinery. I would not object to extracting with combs deeper than the Langstroth, but know of nothing now to persuade me to use anything shallower.



A stationary beehive near Perris, Cal. A colony has occupied a crevice in this rock for many years.

The knife we use is what is called a "sandwich knife," with a copper steam-jacket added by a local smith. The blade is twelve inches long and about one and a quarter inches wide. As there is only one cutting edge, it is necessary to decide whether you prefer to cut up or down when putting on the steam-jacket. Of course the handle is straight in line with the blade, so we escape the tiresome offset of the stock knife, which is only a relic of the days when the beekeeper laid his comb flat on the kitchen table and scraped off the cap-pings with a little curved knife. When the inventor turned the handle of his little thin knife up at an angle to keep his knuckles out of the honey, if at the same time he had only thought to make his knife longer so

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he could get back behind the edge of the comb, what an age of wrist-ache he could have saved succeeding generations of beekeepers. All it needed was the long blade, stiff enough to keep its shape. I am indebted to W. A. Chrysler of Chatham, Ont., for this idea; and, after trying first it and then either the Jones or Bingham knife, there is no hesitation in deciding which is most rapid and comfortable, even when used cold as the first one came to me from Mr. Chrysler. When a real good head of steam is added it is nothing short of a revolution in uncapping.

The rate at which cappings may be removed from honey depends directly on the size of the comb and the ability of the knife to stay hot until the whole sheet is removed from one side. It also depends on the combs being flat and evenly bulged slightly beyond the frame. The long knife which reaches easily across the largest comb and beyond, has the frame for its bearing at both ends: the steady hand and jet of live steam do the rest. After using these knives for a few years our combs are just like boards which have been thru a planer for evenness, and are a joy to the uncapper.

It is of the greatest importance to have a good head of steam. We use a boiler which just covers a three-burner oil stove and holds five or six gallons. It is placed in an adjoining room to keep the heat and fumes away from the workers, and the steam is piped along the floor to a point where rubber hose can be attached from the knives. While we have two knives attached, one active young man can just about keep the eight-frame extractor supplied; and our record last summer, repeated several days, was 5,000 pounds extracted from Langstroth combs in 10 hours, with two men working and the extractor man having an easy time. In conclusion let me pay a slight tribute to the Peterson Capping-melter and the Honey-pump. We would not think of dispensing with either.

Ontario, Canada.

Morley Pettit.

HUNDREDS OF HIVES BURNED

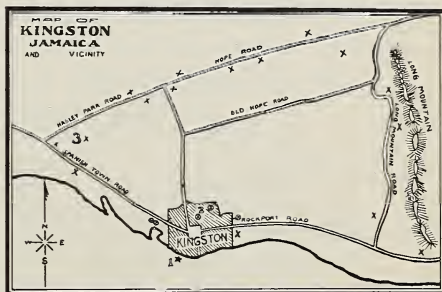
Jamaica by Radical Treatment Eliminates Foul Brood

In your May, 1919, issue of *Gleanings in Bee Culture*, page 319, there is a paragraph which states that foul brood has reached Jamaica. Some people might get the impression that it is still here, which is not the case. I will state briefly what occurred.

In March, 1918, I found that Cuban honey was being brought to Kingston to be transhipped to England, and this honey was being carted from one wharf to another.

During transit some barrels burst, and the bees took it up. I reported this to the Director of Agriculture, and also the fact that foul brood is in Cuba, as I had information on that point from beekeepers who had seen it there. I also pointed out what would happen if the importation of this honey was not stopped. For various reasons this was not done.

At the end of May the director got the Governor to make an order in which all owners of bees within three miles of Kingston were to report to the director the site, number of hives in their apiaries, etc. This



"Prescribed Area" in which no colonies are allowed.

area was called the "Prescribed Area" and no one could move hives of bees into, out of, or within the area without permission from the director. About the 15th of June I received instructions from the director to commence making a quarterly examination of all hives within the area.

The first case of foul brood (American) was found on Dec. 19th, and others quickly followed. In the accompanying outline map the crosses with a circle around each are the apiaries that had foul brood. The other crosses are the apiaries on the outer edge of the area which were burnt as well as all other apiaries which were also within the area, tho not marked on the map. The cross in the harbor marks the place of the source of infection, that is, the place where the schooners were anchored. No other apiaries within the area were found infected up to the time of burning, but on the night the hives were burnt one was found to be infected, attention being drawn to it by the smell.

When it was discovered that foul brood had got a footing amongst the bees in Kingston the beekeepers within the area met the director to co-operate with the Government to make a determined effort to stamp it out, before it spread further. The Government finally decided to take all the hives over, compensate the owners, and burn all the hives in the area, to make sure that it got no further. I received instructions to burn all the hives on the nights of Jan.

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13th and 17, 1919, and also to take over all used beehives, frames, etc., and burn them, and to disinfect extractors, honey-boards, etc. The honey-boards in apiaries that had disease I was ordered to burn.

The area has been quarantined for one year. No bees are to be kept within it and no one can take bees thru the area without a permit. A reward of five dollars is given to anyone who finds a swarm or bees within the area and reports the same. All importation of foreign honey into the island is also prohibited.

There is no doubt that the prompt action of the Director of Agriculture saved the situation, and also that this method of stamping out foul brood the moment it showed itself was effective and thoro. To my knowledge there is no foul brood in the Island. The total number of hives burnt was 1,719.

Ch. Noel Eddowes.

Gov. Inspector of Apiaries.

Jamaica, B. W. I.

[That was certainly very radical treatment. We shall be interested to learn whether it proves effective.—Editor.]

BIG BEEKEEPING

Largest Transaction in Pound Packages and Queens in the World's History

In this age, when beekeepers are becoming numerous, there are many who are never heard of and who receive little or no publicity thru any of the bee journals. Such a beekeeper is Harry R. Warren of Nevada, who has been operating over 1,000 colonies. While Mr. Warren has run 1,000 colonies in the past he ordered 6,000 pounds of bees and 2,000 queens from J. E. Wing of San Jose this season, to increase his yards both in number and size. This is the largest transaction in pound packages and queens in the history of the world. It represents an investment of over \$16,000, and is surely proof of the magnitude of the beekeeping industry today.

Last season Mr. Warren, who is young and energetic, produced, or his bees did, four cars of extracted and comb honey, the source from which it was derived being alfalfa and sweet clover. The bees are hauled on two Ford trucks which he claims are very serviceable. Last year, in addition to the four cars of honey sold, Mr. Warren disposed of two cars of alfalfa seed from his ranch.

Owing to the rush of other work and to being short-handed on account of the war, extracting had to be postponed until winter when the honey was removed from the hives while the temperature was below zero. The supers were hauled to the extracting-house on sleighs and were kept warm continuous-

ly until extracting ceased. Fires were kept burning both day and night to make extracting possible. The comb-honey colonies were tiered up until they resembled miniature skyscrapers. Whenever the bees needed room an additional super was given, but time was valuable and the honey remained on and was given an extra ripening, whether it needed it or not. The honey produced was of a very high grade and fine quality and flavor.

If Mr. Warren was rushed with his thousand colonies and other work, we predict a busy season for 1919 when he has in excess of 3,000 colonies. In his part of the Union enormous crops are produced, and beemen reckon their produce by the ton and carload.

San Jose, Calif.

Bevan L. Hugh.

RAISING COMB HONEY

Minnesota Beekeepers Decide on Best Comb Honey Plan

The Minnesota Beekeepers' Association appointed a committee to report on the best comb-honey plan for beekeepers with not more than five colonies (March issue, page 165).

The plan they decided on does not go into all the details of comb-honey production, but rather has to do with the control of swarming. Two plans were suggested.

The first is for the beekeeper who frequently examines his colonies and knows what is going on inside of the hive. When there is any probability of the bees preparing to swarm, the beekeeper should examine each colony every 8th or 9th day and cut out any queen-cells which may have been started. If the colony persists in building queen-cells and some are found to be well advanced toward completion, then he must treat the colony. Remove the colony from its stand and in its place put another hive. Find the queen and put her on a frame containing brood in all stages, and place this frame in the center of the new hive. Fill out this hive with frames having full sheets of foundation, or starters. On this hive place the supers that were on the old colony. Then proceed to brush off the bees on the ground in front of the new hive, leaving plenty of bees on the combs to care for the brood. Care must be taken not to shake or jar the combs containing queen-cells. Then place the old hive containing the brood to one side of the new hive, with the entrance at right angles to that of the new hive. Each day turn the old hive so as gradually to bring its entrance close to that of the new hive. At the expiration of seven days from the time of brushing the bees, remove the old hive to, another part of the apiary some distance away. The fly-

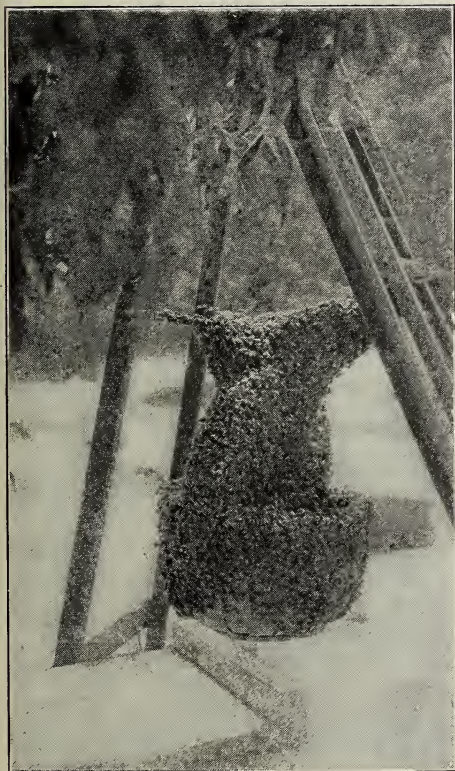
FROM THE FIELD OF EXPERIENCE

ing bees will leave for the fields to gather honey and will enter the new hive on which the supers were placed. When the young queen emerges there will be no flying bees in the hive and so she will be unable to take out a swarm. The remaining queen-cells will be destroyed without any assistance on the part of the beekeeper.

The other plan is for the beekeeper who does not open his hives, or at least does not want to look for a queen. When the prime swarm issues remove the old hive from its stand and in its place put another hive, as in the plan just given. But instead of using frames containing sheets of foundation or starters, fill the hive with drawn combs

stance, the above method may give him more increase than he desires. In that case he can move the old hive from one side of the new hive to the other side every seven days until the brood is all hatched out and then shake the remaining bees in front of the new hive. Other variations will suggest themselves to the thoughtful beekeeper. In order to delay swarming as long as possible the first super should be put on early, Dr. C. C. Miller says, "about ten days after the very first white-clover blossom has been seen." This super should contain sections with full sheets of foundation and one or more bait sections. Use nothing less than full sheets of foundation in the sections, and it is better to use also bottom starters.

Minneapolis, Minn. Chas. D. Blaker.



A swarm worth while.

and then place the supers on top as in the other plan. Hive the swarm in the new hive which is now on the old stand. Then set the old hive to one side of the new hive and manipulate it exactly as in the other plan. Some members of the committee prefer full sheets of foundation in the brood-chamber, no matter which plan is followed.

The individual beekeeper will be able to work out variations to suit himself. For in-

INEXPENSIVE WAY TO START

Stocks of Bees Secured from Bee-Trees Along with Experience

When I was a small boy I disliked the honeybee for a very simple reason. One of our neighbors kept about 12 or 15 colonies of bees, which came for water that was spilled around the cistern in my father's back porch. I often stepped on them with my bare feet and got stung. I had but little idea of their mission to man, so I made a paddle and often sat and watched for the bees, killing all I could. Soon one of my older brothers began cutting bee-trees. My father usually helped him, and I was sometimes allowed to go along. This I thought was great fun; but, being afraid, I was careful to stay at a safe distance, often getting behind a stump or tree, begging them to bring me a piece of honey. My brother laughed at my fear; and as I grew older I resolved to act bravely regardless of the stings. Soon fear vanished, to be supplanted by interest which resulted in a desire to have bees of my own.

I placed a box hive in a tree, hoping to catch a swarm, and began hunting bee-trees. Failing in this I gave it up until the year 1915, when I found a swarm hanging on a small walnut tree. It was a late swarm, but I decided to hive it nevertheless; and, having no hive on hand, I used a nail-keg.

The next spring I bought four good hives and supers, and began hunting bee-trees in my spare time. I succeeded in getting a colony for each hive. By giving super room and cutting out queen-cells I managed to get along fairly well. Altho I did not secure much surplus I learned a great deal, and also derived much pleasure from the undertaking. I am now looking forward in the hope of some time joining the ranks of successful beekeepers.

Medina, O.

B. B. Alexander.

I HAVE never been interested in skunks. I don't know that I have ever lost a bee by them. Yet I thank O. L. Hershisser for foreing the malodorous subject upon our attention on page 364, June Gleanings. There are thousands like me who don't know that they have ever lost a bee by skunks, but do they know that they have not lost by the "varmints"? And Mr. Hershisser does well to stir up a smell on the subject. Who knows but some of the mysterious cases of colonies going wrong with no apparent cause may not be attributable to the miscreant under consideration? At any rate it may be a good thing to start a general effort to have all laws repealed that especially look toward the protection of any animal that parades under the imposing name of *Menhitis mephitica*, or appears just as plain skunk.

* * *

Wallace C. Greenleaf thinks I overestimate the number of cells in a Langstroth frame in the figures I give on page 232. Instead of counting 3,650 cells on one side, he thinks it should be 3,318. He says "In the foundation I have been purchasing I find that there are only 52 cells in 11 inches," and he estimates that there are 26,838 cells to the square inch. Apparently, however, he fails to notice that I said, "if there are 5 cells to the linear inch," and if he keeps in mind that I worked on that basis I am sure he will find my figures correct.

Evidently, however, he would question the assumption of 5 cells to the inch, and that raises the fundamental question, "How many worker-cells are there to the linear inch?"

In one of the latest books, "Beekeeping," by Dr. Phillips, we find that worker-cells "are about one-fifth of an inch across." Dadant's Langstroth says, "They are usually somewhat larger" than five to the inch. Root's A B C and X Y Z says they are "about five to the inch," but "it will be found that they are by no means all of them five to the inch" as the cells are not perfect hexagons. Perhaps no one has gone into the matter more painstakingly and thoroly than T. W. Cowan. He says, "The average size of a worker-cell between the parallel sides is $1/5$ of an inch, or 0.2." He gives a summary of a surprisingly large number of experiments, and of one set he says: "In order to reduce the possibility of errors occurring from measuring only one cell, we selected ten cells, which, allowing $1/5$ of an inch to each cell, should occupy the space of 2 inches. In all, 36 measurements were taken, and we found the greatest aggregate diameters of any one series of ten cells to amount to 2.11 inches, and

STRAY STRAWS

Dr. C. C. Miller

the least to 1.86." In other words, the diameter of a cell varies from .211 to .186 of an inch.

With these data from Mr. Cowan, and remembering that

to get the number of cells to the square inch we divide 1.1547 by the square of the diameter, we find with the average cell (.2 in diameter) there are 28,867 cells to the square inch. With the largest cell (.211 in diameter), there are 25,936 cells to the square inch. With the smallest cell (.186 in diameter) there are 33,377 cells to the square inch. (Incidentally it may be said that if there are 52 cells in 11 inches there are 23,133 cells to the square inch; not 26,838, as Mr. Greenleaf has it.)

* * *

On page 359 I said "the best drone is the drone with the best grandmother," and a footnote wonders whether it would not be more accurate, instead of saying "grandmother," to say "grandparents." It would be a grave error to ignore the influence of the drone with which the grandmother mated. Some think it even greater than the influence of the queen herself independent of any mating. But when we speak of a laying queen do we not always include the drone she met? On page 369 I said: "Suppose two virgin sisters, A and B, just alike in every respect. A meets with the best drone ever, and B with the worst ever. A will rear good workers, and we shall call her a good queen. B will rear poor workers, and we shall call her a poor queen." If that is correct then clearly when speaking of a laying queen we include her drone consort. Now suppose some objector arises and says: "It is not accurate to say that A is the better queen; she is no better than B, accurately speaking, only she met a better drone." For one, I think I should feel like saying, "Put him out!" I wonder, Mr. Editor, if you wouldn't feel somewhat the same way. [Instead of saying "grandmother," leaving the reader to infer we also had in mind the drone consort, we believe that in an article especially emphasizing the influence of the drone it would be quite worth while to say "grandparents." Then even the beginner would catch the point.—Editor.]

* * *

A Nevada beekeeper gets best results in straight even combs in sections by using top starters that are V-shaped, page 353, "under his conditions." I hope those conditions do not generally prevail. Under my conditions I have no trouble with full starters, and if my top starters were V-shaped I'm sure I should have less honey and not so good combs. Drone comb would certainly fill some of the vacancies, and excluders

would be necessary to keep the queen from laying in that drone comb.

* * *

"From October till May an eight-frame Langstroth seems preferable to a larger one," says J. E. Crane, page 370. Y-e-s, provided the beekeeper always sees to it that there is honey enough in the hive so that the bees will not starve during that time.

* * *

"It is not considered practical to produce comb honey in outyards, except in certain favored localities," says J. M. Buchanan, page 360. Coming from such an experienced beekeeper, that makes one wonder just why a locality that does well as a home yard for sections will not do as an outyard. All my work in outyards was for sections, and Mr. Buchanan's view is new to me.

* * *

You admit, Mr. Editor, page 368, that you along with me and certain others know precious little about the sense organs of bees, and ask, "Won't the others please admit the same?" I can't speak for the other fellows, but I'm ready to admit for myself—confidentially, of course—that I have a good stock of ignorance, not only about bees' sense organs, but about a lot of other things about bees. But please don't expose me.

* * *

Mrs. Demuth says, page 359, "When the honey flow is good we go over the super every three days." J. M. Buchanan says, page 361, "A visit is made about once a week during the honey flow." Isn't either one of these practices rather intensive, especially for out-apiaries? I have always thought I did well enough to get around once every ten days, varying from 7 to 11 or 12 days, according to weather and other circumstances.

* * *

The carbolized cloth, with which to drive bees, has been rather popular in Great Britain, but for some reason has been used little on this side. I am rather pleased to note that J. M. Buchanan uses it (page 361). Note that he leaves it on the upper story "two or three minutes" to drive a queen down into the lower story, and "a minute or two" when driving bees down out of an extracting-super. Some have objected that a carbolie taste and odor is given to the extracted honey. I wish Mr. Buchanan had told us about that.

* * *

E. S. Miller says, page 365, that it's all right to breed from the best, but it's hard to tell which is the best, and "it certainly is not always the colony which stores the most honey," and explains that the colony with the best queen may fall short on account of unobserved swarming. Now look here, my good brother of the floury name, do you think that's playing entirely fair? Of course an unobserved swarm at the be-

ginning or middle of the harvest would cut down the crop of that colony. So it would if an unobserved thief should carry off half the crop. But that's no argument why the relative value of queens should not be measured by the yields of their respective colonies, of course making proper allowance for items that interfere. And you dassent tell any better way.

* * *

"Why not just exchange places with the laying-worker colony and a good colony and then requeen the former?" (page 379.) Are you sure you'd be any better off after making the exchange than before? You have merely added a lot of field bees, and they're the ones antagonistic to a strange queen. By the way, is it not hard to get a queen accepted in a laying-worker colony largely because the bees are old? Remember there's no one bee to which all have a strong attachment. [This reasoning sounds all right; but, when this method is put up to the bees, so good an authority as L. S. Griggs of Michigan finds it quite successful. We would be interested in hearing from others who have tried it.—Editor.]

* * *

It isn't nice to have a colony swarm just about the time it is doing its best work in sections. It will help at least a little to avoid that if you give supers early—before they are really needed—and be sure to put at least one bait section in the first super you give to a colony. That bait is a section that was partly built out the previous year, and emptied out by the bees. If this is your first year of beekeeping and you have no such sections on hand, you can do just as well—likely better—to cut out a bit of brood-comb and fasten it in a section. The older and blacker, the more promptly will the bees take possession of it. It will be anything but a fancy section, but it may give you a number of sections you would not have without it.

* * *

A Canadian correspondent refers to Bro. Valentine's second plan of increase, May Gleanings, page 295, and says: "Imagine giving a virgin queen to a lot of old bees at the time of the first frost, when in this locality it is nearly impossible to introduce successfully any kind of queen. Is it the fact that it is so helplessly queenless that they accept a virgin then? What do you think of it?" I should expect trouble except with a very young virgin. I think it is a fact that a virgin not 24 hours old will be accepted at any time in any kind of a colony, even in a colony with a good laying queen. Please do not understand that to mean that you can requeen a colony simply by putting a virgin in, for altho a virgin will be kindly accepted as a baby in a colony having a laying queen, just as soon as she begins to put on airs as a young lady she will be hustled out of that colony in short order.

WE have heard all our lives of those bees living in the rocks in southern California, and it was no small pleasure to look at those pictures on pages 355 and 356, June Gleanings, all characteristic of California. By the way, I enjoy pictures of bee yards, as they frequently give us a glimpse of the surrounding regions, so in time we come to have a very good idea of the topography of our great country.

* * *

On page 364 our friend Hershiser indicts the skunk for trespass and petty larceny. What is more he proves his allegations true beyond the shadow of a doubt. The skunk probably does far more damage in our apiaries than in our poultry yards, but works so quietly and persistently that he must be classed as a nuisance. When I find their depredations too great to be borne patiently I have notified trappers in the vicinity and these soon reduce them to a reasonable number. The high price of skunk fur at present makes it worth while to trap them.

* * *

The papers are reporting these days in great headlines of the success of crossing the Atlantic in a flying machine. It was just about a hundred years ago that the first steamboat crossed from America to Europe, and this was the cause of great rejoicing; but it was twenty years later before ocean steamships were a success. It may be as long before flying across the big pond will be safe. But the fact of special importance to beekeepers is that the food supplies of some of these airmen consisted of chocolate, bouillon, water, and honey.

* * *

A rather amusing item is that at the bottom of page 365: "When you have a swarm, do not go queen-chasing. Watch for pollen going in." * * * If no signs at the end of the third week, have a thoro examination." This is quoted from H. C. C. Carter, in Bee Craft. Watch three weeks to see if a new swarm is carrying in pollen, to discover whether they have a queen or not, when you can open a hive in two minutes and know at once. This method might answer very well if we expected to live as long as some of those old antediluvian patriarchs; but in these days of railroads, automobiles, telegraphs, and flying machines three weeks is a rather long time to learn whether a colony is queenless or otherwise. [A part was accidentally omitted. The advice was to wait two weeks before looking for eggs in the old stock. If no pollen was seen going into the hive the third week, examine carefully. Surely no one had any

SIFTINGS

J. E. Crane

idea of watching that colony three weeks. And, by the way, he was speaking of the old colony, not the new one. The chances are there would be no laying

queen for two weeks any way; and we remember Dr. Miller once said he hardly thought it worth while to look for eggs much short of three weeks. Of course, during the third week one would probably see a little pollen going in; but as soon as the queen began laying, a much greater quantity would be noted. We ourselves have always been better satisfied with inside rather than entrance observation, and yet it may be that our Bee Craft friend is not so far wrong.—Editor.]

* * *

There seems to be a difference of opinion between Dr. Miller and the editor, on page 368, as to the value of a queen-excluder or sieve in finding the queen. It makes a great difference when you look for queens. In May, when colonies are not very strong in numbers and the queen at her largest size we rarely use a sieve; but in or about swarming time, when the hive is crowded with bees and the queen reduced in size, we find forcing the bees thru an excluder most helpful.

* * *

A report of the discussion in the American Bee Journal on the best methods of work for a bee inspector is of unusual value. Police work is no doubt of value, but alone in this section it is of little permanent value. It is comparatively easy to go into a district, examine the various yards, and tell the owners of those having diseased bees that they must clean up their colonies or you will have to destroy them in twenty days. When you come around again in twenty days you will doubtless find a large per cent of the colonies as they were on your first visit. You may destroy them, but next year you will be very likely to find most of those beekeepers who have tried to clean up their bees have just as much disease as in the previous year. In a wooded country you may destroy every diseased colony you find during one season; but, if diseased bees have escaped to the woods, you may expect more or less disease the next year. On the other hand, I know of successful beekeepers where disease exists all around them, who are able to keep bees successfully and profitably. It is of little permanent value to destroy bees unless you teach beekeepers how to succeed where disease exists, and how to keep it under control in their own yards while it is all around them. I can not help thinking that my best work as inspector has been in teaching beekeepers how to overcome disease by proper management.

FOR some years back there has been a growing tendency to include a breakfast alcove or some sort of small breakfast room in the plans for new houses.

When I first noticed such a plan I regarded it as just another foolish fad which would increase the house-keeper's work by giving her an extra room to care for. This past spring when one member of our family was away at school, another was away on a prolonged business trip, and the problem of securing adequate household help was most acute, the breakfast-alcove idea began to look alluring. While putting the dining room in order after meals I found myself estimating how much time could be saved if we had an alcove off the kitchen.

Just about that time I came across a page of illustrations of unusually attractive breakfast alcoves. After studying them I would find myself in the kitchen, trying to figure out a nook where we could put one. Our kitchen is not large; there is a screened porch opening out of it at one corner, a door opening on steps leading down to a little greenhouse at another corner, and the rest of the space is filled with cupboards, sink, table, gas range, cabinet, and doors. At one corner of the kitchen a door opened into a little pantry, five feet, nine inches by four feet, seven, to be exact. That had been intended for food only, as there is plenty of cupboard space in the kitchen for dishes; but as a food pantry it was a miserable failure, for the reason that it could not be kept cool. Just under it steampipes entered the basement to heat our house and the one beyond from a central heating plant, and altho the pantry had a good-sized window, which was always kept open, it was apt to be as warm as a living room even on the coldest winter day. The food had therefore deserted its warm shelves and taken up its abode in the storeroom and on the screened porch where the ice box is kept, and the pantry had degenerated into a catch-all for odds and ends.

One day after poring over my page of alcoves I happened to open the pantry door, and right then and there I had a vision. The unattractive oilcloth-covered pine shelves, drawers and cupboards "faded out," movie fashion, and in their place I saw a dear little room with soft, grayish walls, ivory-finished woodwork, a built-in table with mahogany finished top, flanked on either side by built-in ivory seats with high backs. At the window were creamy net curtains and on the dark table top was a doily with a slender vase of flowers. That was a delightful vision.

Now, after weeks of annoying delays my vision has materialized, and it has done so

OUR FOOD PAGE

Stancy Puerden

in spite of the fact that the nice man, who for 21 years has helped me make my dreams come true, was at that time on the wrong side of the Atlantic

ocean. If you have ever done any remodeling you know the ways of carpenters, how they will begin a piece of work, tear up things at most inconvenient seasons and then, before they have finished your job, desert to begin some other work. Then when you are ready for the decorators they too will fail to come at the time agreed upon and put you off again and again. We were doing over our upstairs rooms by putting in new floors, having the woodwork enameled ivory and papering, and the little breakfast room was to be worked in at the same time. When we received a cable to the effect that the traveler was to arrive home ten days before we had expected him, wasn't there consternation in the Puerden household? The utmost concession that we could wring from the delinquent carpenters and decorator was a promise to see that the alcove was finished, but as for the upstairs work that could not be done, of course.

Well, the head of the family returned to a home that was redolent of turpentine, oils, and wax, the upstairs rooms littered with brushes, paint cans, and furniture out of place, but the pocket-edition dining room was complete, just finished that morning, and he was just as surprised and delighted as the children and I had known he would be.

I have never seen any dimensions for breakfast alcoves and their built-in furniture and therefore with no architect available I had to figure out for myself the dimensions to give the carpenters. Of course, as to length of the seats and table, it was Hobson's choice for they could be no longer than the width of the room and one would not wish them shorter. The seats are therefore four feet, nine inches in length, sixteen inches in width and eighteen inches in height at the front, sloping down slightly to the back. The back of the seat is nineteen inches in height and has a comfortable slant, about like an ordinary chair back. The space underneath the two seats is enclosed to afford storage space, and the board enclosing this space also slants back to make a comfortable space for the feet.

The table is 30 inches in width, exactly the width between the seats, and is 44 inches long and a little under 30 inches in height. One end of the table is hinged just under the window sill and the other is supported by two legs which are joined just above the floor. The whole effect is similar to a section in a Pullman car when the porter puts a table between the seats.

By drawing up a chair at the end of the

table five can eat breakfast or lunch in comfort. Our dinners we usually eat in the dining room as the table is hardly large enough for a dinner when all the family are present. When several of the family are away the few remaining often dine in the alcove. Being a reformed pantry there is a pass cupboard door leading into the dining room, and the small girl of the family thinks it will be great fun to entertain two or three of her friends in the alcove while the family is eating in the dining room as they can be easily served from the dining table through the pass cupboard door.

After using it for a number of weeks do we find that our tiny breakfast room saves enough work to pay for itself? Indeed we do. There is some difference between "tidying" a room eighteen feet long and sweeping the crumbs from a bit of linoleum four feet, nine inches by 38 inches, for because of the built-in seats that is all the floor space there is in the alcove and it takes but a moment longer to sweep that when sweeping the kitchen.

It has been quite amusing to watch the expression on the faces of friends who have happened in and wished to see our alcove. Some of the men have looked dubious, especially before it was finished with the table in place, but every woman has enthusiastically approved, and most of them have begun to figure out how they could contrive a similar one. I believe there are few houses where something of the sort could not be arranged. If you have a pleasant, roomy, old-fashioned kitchen a corner of it might be used either with or without the built-in seats and table, and it need not be partitioned off from the kitchen. In some cases the end of a long, narrow pantry could be spared for a breakfast room. It is sometimes practicable to enclose a part of a porch. The space needed is so small, and the amount of time saved is so great that it is well worth the effort.

If I were about to build a very small house for a small family I should build it without a dining room, with a breakfast alcove off the kitchen, and a large living room, in one end of which a table could be set when there were a number of guests.

Altho the patient Gleanings photographer did his best it was almost impossible to obtain a good picture of our breakfast alcove on account of the doorway.

Honey as a Food for Infants.

Here is a worth-while honey story which comes from Florida. A lady living near Jacksonville was unable to find a food which agreed with her baby. She finally tried sweetening the baby's modified milk with honey, and the baby not only digested well the food thus prepared but gained rapidly in weight. I hope to have a further report of this interesting baby later on.

This is not the first time I have heard of honey used in modified milk for babies, but it happens to be the first report that has

come to me personally. If any of the readers know of similar cases I should be very glad indeed to hear from them.

By the way, when you write to me please do not apologize for taking my time. The letters I receive from kind readers are a delight and inspiration, even if I do not always have time to reply promptly.

CURRENT AND RASPBERRY JELLY.

3 quarts red currants	Water
1 quart red raspberries	Sugar or honey

After washing and preparing the fruit, cover with water and cook until soft, turn into a jelly bag and let drain without squeezing. Measure the juice and for every cup of juice add $\frac{3}{4}$ cup of sugar or honey, after the juice comes to a boil. Cook until the syrup will drip from the side of a spoon in two or more rows of drops or until it will sheet, pour into sterilized glasses, and seal with boiling hot paraffin when cold. Better results are obtained if not more than one quart of juice is boiled down at a time. A second and sometimes even a third extraction of juice may be made by turning the fruit remaining in the bag back into a kettle, adding a little water and boiling up again, but the first extraction will make the finest jelly.

RED RASPBERRY AND RHUBARB MARMALADE.

Red raspberries	Rhubarb cut small
	Sugar or honey

Almost any proportion of berries and rhubarb may be used; half and half gives very good results. Put one quart of the mixed fruit over the fire with a little water to prevent burning and cook about 20 minutes, add three cups of sugar or honey and sugar and cook until a little of the syrup will drip from the side of a spoon in two or more rows of drops, pour into sterilized glasses and seal when cold with boiling hot paraffin, or it may be sealed while boiling hot in fruit jars.

RHUBARB CONSERVE.

1 qt. rhubarb cut small	1 sliced orange
1 qt. white currants	1 lb. raisins
1 qt. red currants	1 cup nut meats
	4 lbs. sugar or honey

Simmer the fruit about half an hour or until the syrup is jelly-like, add the nuts, boil up and turn into sterilized jelly glasses and seal in the usual way.

Mrs. Clara F. Horner, Cleveland.

ROCKS.

$\frac{3}{4}$ cup honey	1 lb. pecan nuts, broken small
$\frac{3}{4}$ cup butter substitute	1 lb. dates, stoned and cut small
3 eggs beaten separately	$\frac{1}{2}$ teaspoon salt
3 cups sifted flour	Flavor
1 teaspoon soda	

Warm the butter substitute and blend with the honey, add the egg yolks and then the well-beaten whites a little at a time, alternating with the flour in which the soda and salt have been sifted. Use enough flour to make a rather stiff drop batter. Add the fruit and nuts and flavor, if desired, altho the flavor of the honey and fruit and nuts alone is very good. Drop from a teaspoon

(Continued on page 471.)

"ANYONE who has any kind of passion for observation must have discovered long ago that a side-line has ever so much more

charm and appeal about it than a main-line." I found that in a serial novel by Hugh Walpole, running in the Bookman. To be sure, since one must be honest, Mr. Walpole was writing about railroads; and his side-line comments rambled delightfully from fishy-smelling little stations to farmers with brown leggings and pipes and knotted walking sticks, from sandwiches and seedcakes and jam-puffs eaten on this interesting little side-line train to Jeremy, in the title role, falling asleep against his father's leg. But oh, he was so right about the charm and appeal of the side line, whether of the railroad one rides or the work one does. There are exceptions, of course, to this statement—else it would be itself a most exceptional statement. But for the most of the people of this earth, how true.

One of the joys of the side liner is the kindly tolerance the rest of the world grants to his enthusiasms. Tho, for that matter, isn't the world generally pretty tolerant of any genuine enthusiasm? And isn't enthusiasm one of the virtues—yes, virtues—most worth possessing? Perhaps that depends on what one is enthusiastic about. But take the beekeeping side liner. Think of his joy in being allowed to parade his enthusiasms openly before his more matter-of-fact friends—all the delights and adventures and astounding experiences of his loved avocation. Yes, and with more grace than would be granted those same friends, he makes moan—oh much moan and most wailingly—when some unexpected misfortune crosses his apicultural path.

There was our "ground swarm." It was our first, and we have told about it to everyone who would listen, and that was everyone to whom we told it. Our friends are most polite, and they recall that we are side liners. As I entered the yard one morning, knowing I would have a little less time there than was needed, and so being compelled to be almost strictly business, I noticed bees flying around the little quince tree just beyond the bee yard. Hurrying I went to investigate, and parting the wild growth, I found a tiny outdoor colony, tangled in with the stems of grasses and weeds. They had built one bit of comb, that could lie in the palm of my hand, attaching it to a stout but drooping stem. How I wanted to play with them, to find their queen, to coax them, small and unimportant tho they were, into a shallow super and watch them grow thru the summer to the dignity of a full-sized colony. But there was real work to do first, with all too

Beekeeping as a Side Line

Grace Allen

short a time to do it in; so I left them there with my best wishes.

Little good the wishes did them, however. When we looked them up in the

cold wet grass after several days of rain, they had given up. The pitiful little piece of comb was still there, but the valiant little workers lay in a heap at the roots of things, dead.

That was the day we found, thru a friend's observant eyes, bees going in and out under a hivestand. Mr. Allen lifted off the hive and in excited expectancy I slowly tipped up the bottom-board. There they were, snug and ambitious and prosperous. Can you see them? Down from the bottom-board, in the quiet spot inclosed by the rim of the hivestand, they had hung the fittings of their home. In the comb were both brood and honey. Then we meddling, tho friendly, giants of an alien race came changing things to suit ourselves. Upside down we turned their home. Probably they did not like that, for it wasn't built to stand that way. Then on the hivestand, thus upside down, we set a shallow super of foundation, and when we looked a few days later, there was nice new comb with eggs in it. Before the bees know what has happened, these same giants will have outwitted them, and they will have come submissively out of their stolen home, with its "natural" comb, into a modern hive with movable frames, scarcely knowing how the change was brought about.

Then there was the gay and stubborn swarm that hung, according to the house-girl, half a day and all night and half another day, hidden in an old peach tree here at home. We had been gone one Saturday, and just as we were buttering our potatoes Sunday noon, the housegirl came in to announce, "They's some bees in a tree jes where they wuz all yestuddy evenin." Then as we were ready for berries she came back to add, "Them bees is flyin round agin." So we left the berries for supper, and went forth for to see. Across the back lot they sailed, apparently ticketed straight for a house on the next street where a small boy was swinging his baby brother in the porch swing. Presently there came screams and sounds of excited running, as the bees threatened to take possession of the place. Dismayed, perhaps, by the excitement, they doubled on their tracks, clustering again in a small maple by the fence. Who can resist a swarm of bees? Even tho it be a tiny one and its capture involve the Sunday dragging of a ladder across to another street. Into a shallow super they were shaken, and who shall say to what they may have grown when another spring count rolls round?

Then there was the polite society swarm.

One May afternoon I stood by the gate waiting for a street car, all silk-dressed and white-hatted and ready for club, when I decided there was time to go back and get a rose. And there, scarcely waist high, on a young peach tree near the roses, hung one of the prettiest swarms I ever saw. Into a shallow super it too went, there being nothing else handy, and I was able to return the courtesy of their low clustering by merely bending a trifle more the bough where they hung, until it lay on the frames, giving it then a gentle jar. And immediately bodies pointed up at a joyful angle, wings started waving, and I left them taking rapturous possession of their new home, while I, with my rose, went on to the club. Not worth mentioning, you see, or even remembering, if one were a professional, but a happy incident to be told with glee, when one is a side liner.

And now, in an utter tumult of overwhelming moods, I claim my side liner's right to make my moan and my long tragic wail. Yes; undoubtedly you have guessed it. What else could it be? American, at that.

The sad details are in no way peculiar. I merely went into the yard one otherwise happy May morning, and when I drew out the first comb, the skies fell around me and the world grew dark. Dry and empty this outside comb was, except that here, there, and elsewhere were perhaps a dozen scattered, sealed, sunken cells, with the telltale ragged perforations. I sniffed. No noticeable odor. I broke a twig from the young cherry tree overhead, and with the world holding its breath, inserted it. Something coffee-colored and ropy came out. Mechanically, like a frozen thing, I drew out a comb from the center, looking for evidence of a mated queen. "Eggs," I coldly informed the indifferent universe, and closed the hive. Walking back to the house I thought of Mr. Holtermann; and Job; and Mr. Buchanan who might—*might*—tho I well knew he wouldn't—call it all a mistake; and Mr. Allen, the comforting depths of whose chivalrous courtesy closes over all my woes.

Mr. Buchanan did all that any inspector could do, came promptly and said the worst. But for all that, the light broke. It always does, you know, even when you get foul brood. We blessed the happy inspiration that had decided us last summer to move our bees away, all but these five hives, now nine, that we kept just for the joy of their presence. Even the humor came in, as it usually does with us here. One evening while I was muttering incantations over a boiler of bubbling lye water, wherein some frames were being coaxed to perfect cleanliness, suddenly across the evening came the sound of a fire engine, rushing out into the night with its ladders and its helmeted men and hose. Down the side street it rushed, swung around the corner, drew to a clanging stop at our rear. Lights flashed in darkened houses, people ran into the street. And the

surprised and peeved firemen found only Mr. Allen, equally surprised and almost equally peeved, where he loomed tall and symbolic over a foulbroody fire in a yawning pit in the backyard!

Honey prospects? Who can say? It rained twenty-three days in May; not usually showers, either, but long steady persistent rains, that acted as tho they had studied "Power of Will," and were demonstrating how they could stick to a set purpose, undeterred by what anybody said. Often it cleared in the evening, the nights being



There they were snug and prosperous on the under side of the hivestand.

beautiful with great stars that seemed to promise equally beautiful days. But always dawn was lost in clouds, and morning came clothed in gray garments, wet and dripping; and behold, today was like unto yesterday and the days that passed before. Bees were kept in their hives and beekeepers grew increasingly discouraged.

Yet after all, there is something more than honey crops in this world to reckon rainy days by. There is something in the souls of men and women that answers to the soft mood of a long quiet gray day. Let us never allow crop prospects to crowd the sensitive response out of our souls. Better gather beauty and the high gifts of the spirit, as we go, than all the honey in all the flowers, and all the money in all the world.

There was one especial day in May. I was alone with the rain, sitting on a high stool under a rather ramshackle roof sloping east from the accommodating shed we have the use of, out there in the country where our bees are. My hands were putting in foundation, but the heart and soul of me were being touched with quietness and all the gentle sounds and tenderness of a rainy day. And verily, thru the years to come, the gifts of that day shall be of more value than many pounds of honey.

RAIN.

I am alone with the rain and the young green earth
and her fragrance,
Alone with the mist-blurred notes that float from
a distant thrush.

My soul, so often a flame, today is a cup of wonder,
Held to the miracle rain—rain—rain—and the
hush.



FROM NORTH, EAST, WEST AND SOUTH



In Northern California.—The spring of 1919, on the whole, was quite unfavorable. The inclement weather during this period curtailed the flow from the fruit blooms of mustard and sage, caused an unusual consumption of old stores, and brought about a greater prevalence of brood diseases. The first few days of June, however, were warm and as early as June 5 the bees were bringing in considerable nectar from alfalfa, so that it may be said that the main summer flow has started. The flow from spring plants was cut short, this being especially true regarding the orange. An average production of about 30 pounds per colony was gathered from this source.

Thru the efforts of A. J. Gilkison, Tuolumne County Farm Advisor, I paid a visit to the distressed beekeepers living in the vicinity of Sonora. F. W. Burtch accompanied me. We found it was the same old trouble—black bees. European had set in and every now and then a case of American foul brood to complicate matters. We did what we could to help, and while I was explaining “methods of treatment,” Mr. Burtch was “signing ’em up” into the Exchange. Tuolumne County has many good ranges. Early in the season the bees work well on filaree and chaparral, and during May there is frequently an extraction from locust. Then follows cascara sagrada or coffee berry, as it is more commonly known, which is the main source of nectar. This shrub produces a wonderful honey. It is not light in color, but is of very heavy body and of most delicious flavor. Other important plants are yerba santa or wild peach, poison oak, tarweed, and blue curls. The mountains rise abruptly in Tuolumne County, and the migratory beekeeper takes advantage of this fact by moving to higher altitudes after the snow melts.

A few words regarding the manipulation of bees during hot weather may be worth while at the present time. Yesterday was a good bee-day, the thermometer registered 99 degrees in the shade, and as there was little or no wind, nectar came in fast. The handling of bees under these conditions in an open field requires certain precautionary methods. Upon removing a hive lid from a colony it should not be placed in such a position that the direct rays of the sun fall upon the inner part of the lid. This is especially so, if there be any burr-comb upon the cover. It is also inadvisable to give a colony a lid, bottom, or excluder that has been exposed to the sun. When a super is removed from a colony, whether or not there are robbers about, it should be covered even if removed for but a short time. Shaking or brushing bees on to the ground or on dry grass at the hive entrance is sure death to them, unless the portion of the ground upon which the bees fall is shaded. Owing to

the incoming nectar it is far better to use a brush well wetted than to shake bees from a comb. The thin honey daubs them, soon filling their breathing pores and putting more or less of them out of commission. After a colony has been manipulated it is wise to provide it with a shade-board and give it ventilation, provided the beekeeper is not working at an outyard which may not be visited for a week or longer. On a hot day a strong colony can maintain the proper temperature within; but when once manipulated it is quite impossible for it to restore the normal temperature, and for this reason it is good policy to provide shade.

M. C. Richter.

Modesto, Calif.

In Southern California.—The weather conditions up to June 1 were about the same as during April. High fogs continued practically every day until June 1, when it turned hot with a drying wind and the flow from the little orange still in bloom was stopped. Some beekeepers became discouraged and moved their bees from the oranges to the sages, thinking thereby to improve conditions. But they found the same weather conditions on the sage ranges. The rainfall being below normal, the ground in the groves was rather dry. The cool weather caused the bloom to remain on the trees much longer than it would have otherwise. Taking it all in all, I am of the opinion that as much orange honey was produced as there would have been, had we had hot dry weather. Nearer the coast it seemed to be a few degrees cooler, and the yield was not so good.

I was over a large part of the sage and wild-buckwheat ranges of Riverside County a few days ago and found that the black sage has furnished no surplus honey. The white sage is in bloom but does not show any promise of a great amount of honey. The wild buckwheat is just getting into bloom and may yield some honey, but at best the crop is sure to be very short.

Most beekeepers have already moved their bees from the oranges to their summer ranges. Many do their own hauling, while others depend upon the city truckmen to do the work. One beekeeper says the truckman puts on 80 two-story hives and hauls them for a stated price. Others charge so much per hour. One thing is important—the sooner one can get his bees to a new location after the flow stops, the better.

Carload after carload of California nuclei is going to Utah and Idaho. Most people have very little conception of the extent to which this “increase” business has grown. For instance, one man leased two locations near the orange groves and placed 350 colonies on them. These he increased to over 1,200, and by the first of June had them



FROM NORTH, EAST, WEST AND SOUTH



on his locations in Idaho ready for the gathering of a honey crop. Of course, in running for so much increase, one must lose sight of the honey production to a great extent. However, this man produced some orange honey.

Shipment arriving at their destination at least by June 15 are likely to give much better results than those arriving later. Various reports as to the condition of these nuclei on their arrival have been heard. From my experience, I would say that most of the grief comes from one or more of the following causes: Trying to ship old bees, too much honey in the combs, improper ventilation, shipping too large colonies, and lack of water while crossing the desert. Experience is a good but often expensive teacher. It might be better to employ some one who has been thru the game to assist you in your first trial of shipping bees.

Considerable demand for bees by the pound comes from Nevada, which has a law prohibiting the bringing of bees on combs into the State.

Prices for honey have not been established yet, so far as I can learn. Some sales have been reported at 20 cents for orange honey. There seems to be no reason for the prices being lower than last year. Apricot and peach growers are offered prices never before known. Why should honey prices go down, while all other food products seem to be advancing? L. L. Andrews.

Corona, Calif.

* * *

In Michigan.—Michigan needs more queen - breeders. This territory will not attract any of the extensive queen-breeders of the South, for we have a very short season as compared with the South. However, many of our own beekeepers are in position to take up queen-breeding along with honey production. There is a great demand for queens in every county, and no one need fear that the queens would not find a ready market at good prices if reared in a yard of good Italian stock. A few years ago some one advertised "black Italians." We do not need any more of that kind. We have too many now.

The prospects for honey at this date (June 8) seem to be better than the average, altho the fall drought killed the clover in spots all over the Lower Peninsula. In the region of light soils the crop may be very short. On the heavy soils the prospects are excellent. Everywhere one hears the expression that "this is basswood year." The number of colonies of bees in the State has increased very largely since a year ago. Also, thousands of colonies in box hives have been transferred into modern equipment, and a large part of them are now in the hands of beekeepers who make a business of

producing honey. This fact will contribute somewhat to the Michigan honey crop this year. Incidentally, the number of beekeepers has been reduced, but the number of honey-producers is increasing.

The summer meeting of the State Beekeepers' Association will be held at Boyne City on July 22 and 23. Boyne City is an admirable place for the holding of the summer meeting, as it is not only in the heart of the summer-resort section of northern Michigan but it also lies within the territory of some of the most extensive beekeepers in the State. The date was chosen so that the beekeepers from farther south might be able to view the crop on the hives and so that it might come at a time when the beekeepers of the north would be able to leave their bees for a time. Boyne City is located on Pine Lake in Charlevoix County. It is a city of about 6,000 people and is amply equipped for accommodating all that may attend the Convention. It is within reach of the apiaries of Ira D. Bartlett, Hubbard Bros., J. D. Robinson, Peter Sowinski, L. C. Gordon, E. E. Coveyou, George Jaquays, and a host of other successful beekeepers of the north. It is expected that the Convention will be invited to view the apiaries of several of these men. Some of the speakers will be E. R. Root of Gleanings, Kenneth Hawkins of the G. B. Lewis Co., Dr. E. F. Phillips, Chas. Yost, Inspector of Indiana, and a number of Michigan men. This is our first effort in the way of a summer convention. The attendance will determine whether or not another one will be held. After the convention, there will be a beekeepers' excursion to the Upper Peninsula for the benefit of those who wish to see at first hand the opportunities that are there for the commercial honey-producer. This will be an ideal time to view the possibilities of the region, as the raspberry crop will be gathered by that time and the clover flow will be at its best. The excursionists will visit several quite extensive producers in the Upper Peninsula.

I feel honored to be corrected by Dr. C. C. Miller in regard to some remarks referring to the rearing of queens and drones, in the May issue. I gladly yield the points he "calls" me on, but wish to emphasize here what I did not mention then as being the cause for those remarks. We need here in Michigan not less than 100,000 high-grade Italian queens. We need such a preponderance of Italian drones in our yards that the bees of the woods and the black bees of our neighbors may soon become Italianized. The need is not so much the rearing of queens and drones from the best of a yard full of Italians but the rearing of the queens and drones from the one or two good Italian queens that are in the yard. The average apiary does not contain over one good Ital-



FROM NORTH, EAST, WEST AND SOUTH



ian queen. Probably, the greatest need at present is Italianizing.

East Lansing, Mich.

B. F. Kindig.

* * *

In Ontario.—Following a long continued spell of cool wet weather, a wave of extreme heat struck Ontario on May 26, lasting until June 5 when a fine rain came. Heat and moisture are wonder-workers when combined, and the hot weather coming when the ground was full of water has forced on a wonderful growth of clover. As we had practically no days fit for bee work previous to the 26th of May, needless to say everything was in a rush for the four days that fruit bloom was out, and even then not over two-thirds of our colonies were overhauled and queens clipped before the bloom was gone and a dearth of nectar made colony-examination on an extensive scale impossible. While we can do nothing with the bees at home here, at the locations up north bees are getting enough from thorn apple to keep them busy and hives can be opened right along with no robbers bothering.

The Canadian dailies of a few days ago contained a notice sent out by the Canadian Trade Commission located in Great Britain, that the demand for honey will be large from that country this year owing to much loss among the bees from various reasons during the last four years. While the report may be accurate in some ways, private information has seemed to point to the fact that the honey market over seas is in a somewhat unsettled condition, and that the extreme prices of a year ago are not apt to be duplicated this season. However, I suspect that the advice of the commission to produce all the honey possible, with the assurance that a good price will be obtained, is absolutely sound; for, with other articles of food soaring higher all the time, it is hardly probable that honey will sell at a figure low enough to come under the head of being cheap.

Among the honey sources of Ontario that I have never seen mentioned if I remember correctly, is the large oak of the forests. While for years we have noticed the bees working on the oak bloom early and late while it lasted, yet the few trees in our home section did not give one a fair idea as to whether they yielded honey as well as pollen. But at the north apiaries there are large numbers of oak, and this year the weather was perfect while they were in bloom. Our bees practically deserted all other nectar and in four days strong colonies nearly filled full-depth 8-frame L. supers with honey. Can any one living in a locality where oaks are plentiful tell us whether this is a common occurrence, or was it something not likely to happen again? I have been in the habit of telling people that only pollen

was obtained from the oak; but, with the evidence to the contrary so pronounced, I will have to revise my ideas on the subject. [This is of interest. We understood Mr. Lovell that oaks bear pollen and in some species honeydew, but not nectar.—Editor.]

We are reminded that the shipping of package bees from the South in hot weather is still an uncertain problem. A large consignment came into one of our Ontario cities during the extreme heat, and in the lot over 60 packages were all dead and others badly damaged. An experience like that is enough to discourage both consignor and consignee. I understand these bees were on the road for seven days, and that shows very bad service on the part of the express companies, as the distance can be covered in ordinary passenger service in less than four days. Whether an express company can be forced to make good in such a case as that is a question; but, in our humble opinion, the moral right to do so is there even if they cannot be legally compelled to pay the damage. Given cool weather and plenty of food, bees usually come in good condition even if on the road seven days; but with the thermometer over 90 during every day of the trip, I believe that will spell disaster nearly every time.

Is foul brood on the increase or decrease here in Ontario? While I was acting as inspector for a number of years and trying to give conscientious service, viewing the localities that I worked in during those years and seeing conditions as they are now, I often wonder if the money I spent was worth while. Certainly European foul brood is increasing, and I have my doubt as to American foul brood being much checked—in other words, I believe it is holding its own all too well. Of course, it will be pointed out to me that certain sections have less than a few years ago; but then I can point to other sections that are much worse than they were a few years ago. I do not feel like doing much criticising; for, when one has nothing constructive to offer, silence is better than destructive criticism. Certainly it is a problem to deal with, and the present demand for bees, with many inexperienced persons starting in beekeeping, is adding to the difficulty all the time. One thing sure, the prospective or present active beekeeper must more than ever realize the necessity of being able to diagnose the two brands of foul brood, and in a measure thus be his own inspector. While he cannot prevent his neighbors from spreading disease, it is a source of satisfaction to be able to know that he himself is not a means of spreading the plague.

The clover and buckwheat prospects have seldom been better and bees are, as a rule, in fair condition, except where foul brood is spoiling the chances of a good crop.

Markham, Ont.

J. L. Byer.

HEADS OF GRAIN

FROM

DIFFERENT FIELDS

How Much**Buckwheat to Sow.**

In regard to the proper amount of buckwheat to sow per acre, I have made a number of inquiries, and the consensus of opinion seems to be about one bushel of Japanese or two to three pecks of Silverhull. Broadcast seeding gives best results. A man in western Illinois recommends for rich, well-prepared land one to two pecks per acre of the Silverhull variety, and claims that light seeding on good land gives best results. Another in central Michigan, on a lighter and sandy loam, recommends two to three pecks per acre of Silverhull seed. Rough and poor land requires more seed.

Wm. Findlay.

Basco, Ill.

sprinkled them a little, and, leaving the cover off the hive, I went into the house and watched them. A little later I saw one bee that looked different from the others, and concluded she was the queen. I got all the books about bees I could find, and read up; and, sure enough, it described her exactly. When my husband came home I met him at the door and said, "The bees swarmed." He replied, "And lost them." I answered, "No. I got them, every one, and got stung only once." So you see I am now a real beekeeper.

Mrs. W. M. Cochrane.

Watts, Calif.

**A Small Breeze
From the North.**

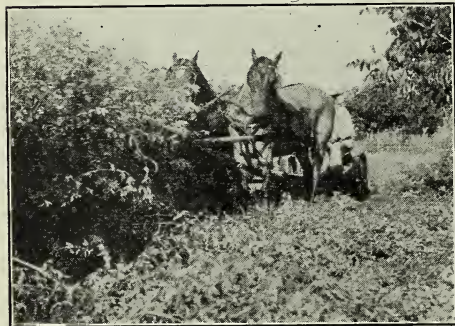
Here it does not seem to make much difference whether a colony

is made queenless or not, regarding the accepting of cells, only that more will be accepted in a queenless colony if a second batch is given five or six days after the first grafting. I prefer to use more colonies, and only those that are strong enough. After the honey flow in late summer, we have a different proposition, and I then find it necessary to use queenless colonies.

Regarding increase, as I am writing for yours, an American publication, I presume it will be permissible for me to use an American style; and since most of our warm air comes from the South, a small breeze from the North would not be noticed. I once bought three colonies of black bees which I Italianized the first season and increased to six. The next season I increased to 18, and they gave me an average of 300 pounds, spring count. The following season I increased to 45, taking an average of 200 pounds per colony, spring count. I feel satisfied that I could take one colony with a good Italian queen and three supers of drawn combs and increase to 500 colonies in five years and make them raise their own queens and pay for everything in connection with them. I hear some one say, "That must be a pretty good location." Well, I don't know. The first start I made in bees I bought five colonies of blacks. That same spring a friend of mine started in with 120 colonies. Comparing notes the third season after, my five had increased to 160, and my friend had eight hives of bees left alive and a lot of empty boxes for sale, and there was no disease of any kind in his apiary.

Regarding the difference in bees, I have known of a 200-colony yard in which 75 colonies of a certain strain produced in a poor season a surplus of 75 pounds, while right alongside of them were colonies as strong, or stronger, that were living from hand to mouth.

One of my colonies has a five-year-old queen. On May 20 she was occupying a 2½-story hive, tho the spring was cold and wet.



The experience of these horses is to have been fed on sweet clover only, and kept fat.—W. C. Gathright, Fillmore, Calif.

**The Woman and
the Swarm.**

One year ago my husband bought a colony of bees, and has ever since been a devoted beekeeper, altho we have now but three colonies. Yesterday when he was at work, and I at home alone, I suddenly heard a frightful roar, and looked out to see what had happened. It looked to me as if all the bees were in the air, and I began to get ready for that swarm. I donned my raincoat, a pair of cotton gloves and a veil, and started out for the hive which Mr. Cochrane had made ready. Well, that swarm alighted on the fencepost and top rail of a wire fence where I could not put the hive under them, but I put the hive as close to the fence as I could and stood still and wondered what to do, as I could not shake the fence. Finally I got the smoker and some water, so if they became too familiar I'd be ready, and then I thought of that woman's weapon, the broom. I carefully brushed the bees off the fence and into the hive, or as many as I could get there, for the rest were on the ground and on the side of the hive where I

HEADS OF GRAIN FROM DIFFERENT FIELDS

This colony is packed winter and summer, the packing-case being covered on the sides and ends with black tarred paper which makes it hot in summer. Altho their summer entrance is $4\frac{1}{2}$ inches wide by $\frac{1}{2}$ inch deep, yet they have never swarmed. This colony, when grafted cells are given it, will seal the cells containing larvæ less than 48 hours old. If you have never seen queen-cells sealed over containing larvæ 24 to 48 hours old, and believe that bees always wait till the eighth or ninth day to seal them, I can send you some later that will convince you otherwise.

I take this to be a non-swarmling trait since this colony, tho headed by a five-year-old queen, has never shown any inclination to swarm, nor will they finish to maturity queen-cells grafted in the regular way.

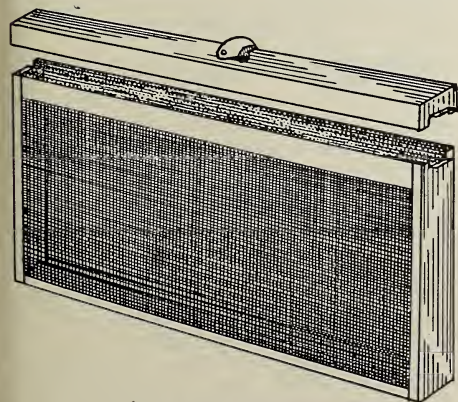
Ontario. John A. McKinnon.

[This is written in reply to comments made on page 319 of the May issue. Mr. McKinnon also calls attention to the fact that we quote him as saying that he puts a super of combs over an excluder, leaving space for a bar of cells. Of course that super contains combs of brood, as is shown later in the same paragraph when we speak of removing two "of these frames of brood."]

In regard to capped queen-cells containing larvæ only two or three days old, several were found in one of our colonies about two weeks ago. Such cells never came to our attention before.—Editor.]

Introducing and Uniting Cage.

These cages can be made in one, two, three, or four-frame sizes, etc., for introducing queens and uniting bees. I have succeeded in introducing



For introducing queens and uniting bees.

queens where there was robbing going on, also when laying workers were present, by using the one-frame size. Just take a frame

with capped brood and some honey. Brush off the bees and hang the frame with the queen in the cage.

The drawings and sample are for Hoffman frames; but the same principle applies to other styles as well.

A. E. H. Fabian.
Lake Geneva, Wis.

Beekeeping on a Big Scale.

Few people realize the amount of supplies a large beekeeper requires. It takes from half a ton to a ton of smoker fuel alone for a good season's run, and from one to two dozen Jumbo



A few extractors used by Lusher.

smokers. No, we do not try to destroy smokers, but they just wear out from service. I buy what the junk men call tree-wraps for fuel. Foundation in half-ton lots does not last long when you have thousands of new Hoffman frames to fill every season. Wire in two and three dozen one-pound spools, and nails by the keg, also 60-pound honey-cans by the thousand, are a few of the expenses besides six good men. Gasoline and cylinder oil by the drum are also large items with the beekeeper since autos have become so reliable an assistant. But if one can get honey by the carload, expenses do not hurt a good beekeeper. The picture shows a few extractors used, also a small pile of honey ready for shipment.

California.

A. E. Lusher.

Brown Bees to be Replaced by Italians.

The ravages of the Isle of Wight disease in this country have thrown a different complexion on beekeeping, because it has been found that Italian bees have a greater resisting power. Therefore the breed with which we are now restocking the country is more prolific.

Our brown bee was a great favorite, partly because of the beautiful cappings on sections and partly because its habits fitted our hives and methods of management which had developed from our experience with this particular bee.

It is probable that in a very few years

HEADS OF GRAIN FROM DIFFERENT FIELDS

there will be no pure brown bees left, and therefore it is necessary to look ahead and gradually change our methods until our equipment, etc., are suited to the requirements of a queen whose egg-laying renders necessary a brood-box of 50 per cent greater capacity than ten of our standard frames.

St. Cross, England. C. P. Jarman.

came back to the electric station from where we started.

But E. R. is too good a man to be downed, so he inquired of a man standing nearby, "Say, where is the Stewart Hotel anyhow?"

The fellow looked us over carefully as

Carbolized Cloth for Driving Bees.

I read lately in a back number of Gleanings that you had not tried using carbolie acid in handling bees. Try the following solution: 1 ounce carbolie acid, 1 ounce glycerine, 6 ounces water. Shake before using. Make two cotton cloths of a size to cover the top of the hives. Tack one edge to a half-inch roller, one inch shorter than the top-bar of the frames. This makes a small blind in appearance. Do not hem any of the edges of cloth. To use, sprinkle the cloths with the above solution. Use a feather in the cork of the bottle. In taking off the covers, roll the carbolie cloth on as fast as the bees are exposed to the light. Dry your hands with the cloths, and the bees will not sting the hands.

William Hogg.

Castle-Douglas, Scotland.



E. R. Root looking for the Stewart Hotel.

Jay Smith Thinks Joke Is on E. R.—We Wonder.

Now Mr. M.-A.-O., I think E. R. needs a little more showing up. While he and I were in Riverside, Calif., he led me an awful chase. When we got off the electric car, E. R. wanted to know at what hotel I intended to stop. I told him I did not know; so he said, "We will go to the hotel where I stopped when I was here last. It was the Stewart Hotel. I do not know just where it is, but I will know it all right once I get my eye on it."

It was a terrifically hot day. I had on my overcoat and was carrying two heavy hand-bags. Moreover, it was nearly time for our meeting; but E. R. said it was not far, and it would not take long to find that hotel if I could keep up with him. So he led out at a lively pace, and I followed the best I could. My, how I did sweat!

He said, "This looks like it just ahead," and we went a couple of blocks, but that building proved to be a church. Then he said, "No, I think it was down here a block or two. That building looks considerably like it." So we went down there. This building proved to be the creamery.

"Well," said E. R., "This must be it over here," so after four blocks more we came to the fire department. "Well, well," said E. R. "Then it must be over here to the left," and after six blocks more we

though he was suspicious of our characters or our mentalities or something and then replied, "Say, what have you fellows been having to drink? The Stewart Hotel is not in Riverside! It is in San Bernardino!"

Vincennes, Ind.

Jay Smith.

Another Soldier and Nail Keg.

After reading in Gleanings about the horseshoer soldier boy with his two colonies of bees in nail kegs, I thought I should like to tell my own experience with bees. I am not a soldier now, but was during the Civil war, and am now a retired blacksmith. In 1916 I found a swarm of bees hanging on a bush by my garden. At first I put them into a nail keg, but later transferred them to a Langstroth hive. The spring of 1918 found us with three good strong colonies. During the season they threw off eight swarms, which we saved all but one. Besides saving over 100 sections of honey for our own use we sold \$65.00 worth. We are very proud of our bees. They were in fine condition when packed for the winter, and on Dec. 19 last gathered pollen from dandelion blossoms.

London, O.

T. W. Preston.

S. A. Ratliff, President of the Aluminum Honey-comb Co., has just sent us a copy of a letter that he sent J. E. Crane, after reading the latter's comment on aluminum combs, page 302, of the May number. Mr. Ratliff thinks that Mr. Crane should not pass judgment concerning the company except after an examination of its affairs. He says he would also like to see Mr. Crane's expression after he had made some test of the comb itself.

In regard to the sale of stock, Mr. Ratliff says: "I have no idea who the stockholder is who wrote you a letter. His statement is true that we had orders for more than 40,000 combs. A number of wealthy men in Los Angeles have made propositions concerning the purchase of a controlling interest in the concern. Mr. Root has never made the writer a proposition to buy an interest in the Company, and likewise the writer has never mentioned any such proposition to Mr. Root. We have never sold a beekeeper stock unless we also took his order for combs at the same time, and these combs we are glad to say are being delivered to their entire satisfaction. The writer is personally acquainted with Mr. E. R. Root and I do not believe he would say that it is the intention of the Company to sell stock rather than combs."

"During the past year I have found the use of steam heat in the extracting-house a great success. I use it for melting the cappings and for heating the honey and keeping it just right so the honey-pump can handle it. The steam is led into the capping-melter, the uncapping-tank also, under the extractor, and under the pan that heats the honey for straining, and under the tank that delivers the honey to the pump. All of these five places need no special attention. I simply have to keep up the steam outside under the boiler, and that is easy."—Daniel Danielsen, Morgan County, Colo.

"To patch a torn queen-cell, warm a piece of foundation and lay it over the hole. Daub with hot wax along the edges; then dip in wax that has just started to cool and has formed a film on top to about $\frac{3}{8}$ inch from the point. If short of protectors, dip all cells as above and fasten a nail at the top of each cell and insert in the comb."—J. E. Thompson, Medina County, O.

"In the editorial in the May number, on the increase of foul brood, the editor speaks of a 'beeman' who used his hive-tool to dig out diseased brood, and went on to the next hive and dug into healthy brood without cleaning his hive-tool. That reminded me of what our county bee inspector did in my yard. In eighteen colonies inspected he found six with European foul brood, and

BEES, MEN AND THINGS

(You may find it here)

he never cleaned his hive-tool once during the operation. It is bad enough for a beeman to make such blunders; but when an inspector does it, what should

the bee owner do to him?"—F. W.

"I avoid mixing frames and supers at extracting time by having a piece of colored chalk handy and drawing a line across the frames and edges of the super close to one end before uncapping. With the next super, I draw the line quarter way, with the third super in the middle, then begin over. If one needs more than three kinds to avoid confusion, every second set can be marked out with double lines."—Harrison H. Brown, San Juan County, N. M.

"I left eight of my colonies in a bee-house last winter; but a small tree fell on it and knocked a few shacks off the roof; and this spring, while I spent sixteen days in the hospital, an old bear went thru the roof and cleaned up the eight hives. He broke the frames in pieces and killed all the bees."—Sherman Craig, Skagit County, Wash.

"Dear Mrs. Grace Allen: Did some one ask you of the word 'bee-cr' and 'beerette'? In Japanese language the both of the man and the woman who works with bees is called as 'yo-ho-ka,' equally. Woman and man is the same human being. Then they must be called the same, or equally, 'bee-cr' or 'yo-ho-ka.' Is it not so?"—Yasuo Hiratsuka, Japan.

"Every man with whom I come in contact enjoys the M.-A.-O. department. When I was in Washington, Phillips, Demuth, and I had several good laughs over the M.-A.-O. articles in the back files of Gleanings, especially Pritchard's 'Odorless method of handling skunks.'"—Jay Smith.

"We have seven out-apiaries, and the younger generation of Dadants, the third in beekeeping on a large scale, assert that a man, with a little occasional help, can take care of a thousand colonies and make it pay."—C. P. Dadant, Editor American Bee Journal, Hamilton, Ill.

"My bees began to swarm on Easter Sunday; and as I had no hive I kept them three days and three nights without a hive. I put earth on the ground and then got the bees on the earth, drove four two-foot stakes around them, and spread a sheet over them."—J. H. Canady, Morgan County, Ind.

"Since the fire, honey prospects for the future look great up here."—J. Krminski, Saint Louis County, Minn.

"Our wet spring this year was like that of 1916. We hope it will continue the similarity thruout the season, for it was our best ever."—Morley Pettit, Ontario.

THE New York State Association of Beekeepers' Societies hold a field meeting August 1 at the apiary of Deroy Taylor, Newark, N. Y. They plan to make this the largest one yet held in their State.



* * *

Professor F. Eric Millen of the Department of Apiculture, Iowa State College, has accepted the position of Professor of Beekeeping and Provincial Apiarist at the Ontario Agricultural College, Guelph, Ontario, Canada. To show the loss to Iowa and the consequent gain to Ontario, we quote a little tribute from a letter we recently received. The letter is not supposed to concern Prof. Millen, but rather the Iowa foul-brood law. It is as follows:

"So far, I am much impressed with the result which Mr. Millen is able to secure in Iowa. However, I think Mr. Millen is a type of man that would get good results with almost any kind of law, and as much credit, perhaps, is due to Mr. Millen's personality as to the kind of law under which he is working."

We all extend our best wishes to Prof. Millen in his new work.

* * *

Connecticut has a bill before the House, the purpose of which is to secure for the benefit of the state inspectors a list of beekeepers, together with the number and location of their colonies. Each person owning one or more hives of bees is required to register annually before the 1st of October. The recording fee is 25 cents. The fine for non-registration is not more than five dollars.

* * *

The beekeepers of St. Louis have recently formed the Mound City Bee Club, which purposes among other things to discourage nail-keg beekeeping, to co-operate with inspectors, to stimulate honey consumption, to calculate production costs, "and last, but not least, to enable the enthusiasts to meet and get it out of their systems and be thereby no longer a bore to their long-suffering friends who don't care a rap about bees."

* * *

On May 8 at the State School Building at Delhi, N. Y., was held the first meeting of the Delaware County Beekeepers' Co-operative Association. This was the first county organization of honey-producers that organized in New York State under Article 13A of the Corporation Law.

* * *

An important field meeting of the Connecticut Beekeepers' Association will be held on June 28 at the apiary of George W. Schofield of Berlin, Conn. Mr. Schofield is re-

ported to possess a model apiary, and many will doubtless take this opportunity of visiting it. Lunch will be on the basket plan. The program for the day will be

in charge of Prof. Lloyd R. Watson, Apiculturist at the Connecticut Agricultural College.

* * *

At a recent convention of the Fairfield County, Connecticut, Beekeepers' Association, President Root gave a good address on the food value of honey. Delegates were chosen to the convention to be held at the State College of Agriculture at Storrs, during the month of August.

* * *

The Ohio State Beekeepers' Association hold their annual field meet at Delphos, Aug. 7. The meeting will continue during the day and evening and will be held at the apiaries of Fred Leininger and Sons and J. H. Allimier. A good program is planned and a large crowd expected.

* * *

The Provincial Department of Agriculture at Victoria, B. C., states that the honey production in the province of British Columbia for 1918 approximated 225 tons. It is stated that this production is essentially a side line, and that the professional apiarist is practically non-existent in the furthest west Canadian province; but the prospect for bigger things in beekeeping there is in sight.

* * *

Two short courses in the elements of apiculture will be given in Los Gatos, Calif., June 17-July 3, July 7-July 18, by Prof. Will C. Steinbrunn, at the Montezuma Mountain School. Special care will be given to the manual part of the course (hive-building and other shop work), and queen-rearing will also be demonstrated. Six apiaries will be at the disposition of the class. (See page 429 and also the cover.)

* * *

The Imperial Valley Honey Producers' Association has purchased a warehouse at El Centro and will ship the honey of members of the organization. Imperial County now has about 18,000 colonies of bees. At this season little honey is being taken from the colonies, but they will average 80 pounds each during the year, making the annual production about 1,440,000 pounds.

* * *

John H. Rosser of Queensland, Australia, of the Australian Expeditionary Forces in France, visited us recently. He is a young enthusiastic beekeeper now touring the United States on a motoreycle, visiting

many of the commercial beekeepers between New York and San Francisco. From San Francisco he will sail for Australia in the fore part of August in order to be present at the beginning of the honey season there, where he will take up his pre-war work as a beekeeper.

* * *

Charles B. Justice, Secretary-Treasurer of the National Beekeepers' Association, gives the policy and aims of the Association as follows:

"The new object of the National Beekeepers' Association is that it may become an affiliation to all State, county, or district co-operative marketing honey exchanges and associations thruout the United States, and that the affiliation shall have only regulatory powers. In other words, each district or State exchange or association will handle its own business as a complete entity within itself, and it should be incorporated on a firm contract holding its members together and developing the standards of quality, grading, and manner of packing and selling its products; and its membership in the National Beekeepers' Association should be by delegate properly accredited with the power and authority of the exchange or association sending such delegate, with the idea that the combined strength of all the State or district exchanges supporting the membership of the National would be sufficient to bring success to its efforts and determination."

At the 49th annual convention of the National Beekeepers' Association held in Chicago on Feb. 19, a resolution was adopted that the secretary of the Association be directed to invite representatives of all organizations of beekeepers, teachers of beekeeping, and members of the allied trades, to meet at Kansas City, Mo., in January, 1920, for the purpose of formulating and adopting a plan and constitution for the National Association.

Mr. Justice says it is hoped that the National may render valuable service to beekeepers in a national way, may increase the consumption of honey, secure national and State recognition and assistance thru education, appropriation for extension work, and wise laws protecting the purity of honey, and safeguarding the beekeeper in his work of production.

Mr. Justice believes that each district where honey is produced should be organized into strong marketing associations or exchanges. Tho the members of an association may themselves sell most of their honey, locally if preferred, they will always be able to dispose of any possible surplus by means of the exchange. He says all legitimate dealers and handlers of honey everywhere will welcome co-operation among the producers, since they know this will result in better grading and better containers, and will keep chunk honey off the market.

To all officials of exchanges representing 1,000 or more colonies, Mr. Justice will be

glad to render any possible service in explaining the benefits of organization. His address is 318 L. A. Investment Building, Los Angeles, Cal.

* * *

On May 26, a representative of Gleanings in Bee Culture attended the hearing of the Consolidated Classification Committee Docket No. 1 in the interests of producers and shippers in general.

We give the matter of classification of honey, comb and strained, as per committee's subject No. 36.

In view of the fact that the hearing was had at the time the proposed consolidated classification was issued on various commodities, among which was honey, the Consolidated Classification Committee refused to hear arguments other than those which pertained to changes proposed in docket No. 1 as applicable in southern classification territory, because the original advances, as proposed by the consolidated classification No. 1 which embodies the question of honey in tins L. C. L. western territory, are now before the Inter-state Commerce Commission, and that body has not as yet rendered decision.

With reference to the proposal to increase rates on honey in bulk in barrels L. C. L. in Southern territory from fourth to third class, we presented arguments vigorously protesting this advance and were advised by the Consolidated Committee that our testimony would be given due consideration before they permitted the increase to become effective. We feel that their decision will be favorable.

There was considerable discussion on the question of proper containers for shipping honey in bulk. The fact was brought out that handlers of honey in the South have been using gum and cypress barrels some of which were of poor quality. The result has been that a good many claims have resulted from this method of packing, which brought about the proposed change in classification as per docket No. 1.

It was felt that if these barrels were used and a limit placed on the size; also, specifications provided as to the construction, such as width of staves, and number of hoops, lining with paraffin, the loss and damage feature could to a great extent be overcome.

Evidence presented seemed to indicate that hardwood barrels, with not less than six to eight hoops according to the size of the barrel, afforded sufficient protection to permit the transportation of honey (with reasonable handling by transportation lines) without loss sufficient to warrant the proposed raise in rates.

The Inter-state Commerce Commission's Decision bearing on the subject of honey in tins L. C. L. Western Classification in ICC Docket No. 10204 when rendered will appear in the columns of this paper.

* * *

A quarterly bee journal, "The California Honey Bowl," has just been launched at Riverside, Calif. The editor is E. J. Atchley.

THE "large hive" is given unusual prominence in the April Apicultural Journal, three articles and an editorial appearing on the subject. Both

the American Bee Journal and Gleanings are quoted at some length, and H. M. Holloway, speaking of his own experience, says: "For a good locality that will carry, say, 150 or 200 colonies or more in a good season, give me a twelve- or thirteen-frame hive, and, of course, the best queens I can get to fill them with busy workers." In an editorial we find the following:

"In America, that land of rapid apicultural progress, the eight-frame was originally almost universally used, but recently the ten-frame has become more popular, and now there is a decided tendency among many prominent honey-producers to advance to the thirteen-frame square hive. This is just in line with our experience here. Between twenty and thirty years ago we tried the eight-frame extensively, but dropped it entirely in favor of the ten-frame, then we went further and tried the twelve-frame hive, which we liked very much."

* * *

LIFE OF EUGENE SECOR.

The writer is one of the many who feel how much gentleness of soul, how much fraternal affection and sincere friendship, how much goodness and poetry, have gone out of the world. Eugene Secor is dead.

* * *

His ability called him to leadership in many lines in which his activities were put forth: Thoroughness was characteristic of all that he did; and the spirit of advancement and progress guided him in every stage of his career, bringing him at last to a place where he stood as a recognized authority upon many questions that had to do with the material resources of the State. * * *

For the past forty years he was widely known as a bee culturist, winning a world-wide reputation in this connection. Such is his standing in this line that in 1893 he was appointed the sole expert apiarian for the World's Columbian Exposition at Chicago—a fact indicative of his wide study and knowledge of the subject. He was a member of the North American Beekeepers' Association, of which he was at one time president, while for seven years he was its general manager and treasurer. He was a regular contributor to various agricultural and technical journals on subjects relating to bees and other phases of country life, and his opinions have become accepted as authority.

He possessed considerable literary taste and talent and was widely known by his writings in the daily press and in his works issued in printed form. The writer knows



not a line which, dying, he would have wished to blot.

This world and this community are better for the life that Eugene Secor lived.—Win-

nebago Republican (May).

* * *

SWARM CONTROL FOR COMB-HONEY PRODUCERS.

"Control of swarming with comb honey" is discussed by Dr. C. C. Miller in the June American Bee Journal. He says some swarm-control measures are much the same in the production of comb honey as in the production of extracted. Among such he mentions shade, large brood-chambers, wide spacing, and suppression of drones. As regards ventilation, he says the case is different. Altho comb-honey colonies also need ventilation to prevent their swarming, care must be taken in providing it. The entrance may be large, and the hive raised by inserting blocks at the corners between the brood-chamber and bottom-board, or there may be a two-inch-deep bottom-board with a bottom rack to prevent the bees from building comb under the frames. But if any opening is given above the brood-chamber, the cooler air will interfere somewhat with storing and very much with sealing.

However, Dr. Miller considers ventilation above so important that he believes the good resulting from it overbalances the harm. Therefore he advises that the super be shoved forward, leaving a quarter-inch space between the brood-chamber and super. The sections nearest the opening and immediately above may not be sealed as soon; yet in very hot weather they may be. He would not ventilate between supers, but has tried top ventilation with an opening in the middle of the cover and a 3/4-inch space between the upper and outer covers, and thinks such ventilation might, perhaps, be worth while.

He suggests an examination for queen-cells every ten days, destroying them whenever found if they contain only eggs and young larvæ; but if further advanced he advises shaking (that is, removing all but one comb of brood) or taking away some bees with the hive of brood and making increase; or if one desires the largest possible working force on the old stand he may cage the queen in the brood-chamber for ten days, or take her with two frames of brood and adhering bees and make a nucleus, returning her at the end of ten days, or, better still, giving a young queen at that time.

* * *

DANGEROUS TO TEMPORIZE WITH FOUL BROOD.

In speaking of the treatment of combs from foul-brood colonies, A. F. Atwater, in the Domestic Beekeeper for June 1, says that Thos. Chantry of Wellington, Utah, makes a practice of washing such combs

showing no disease, and using them again. He reports, also, that two neighbors have tried this with "sometimes but little recurrence of disease, and sometimes considerable." He brings up the question because he understood Mr. Townsend had been successful in cutting out foul-brood cells.

E. D. Townsend replies that the cells he cut out were in extracting-supers and not in the brood-chamber, and that they were not cells showing disease but simply cells that had been bred in. Those combs above an excluder that have never been bred in, he extracts from and then returns to the same colony to be cleaned, "the theory being that any spores of American foul brood not removed by the bees in this cleaning process soon lose their vitality and are harmless." [We wonder!—Editor.]

Old brood-combs with several layers of cocoons saturated with diseased honey he believes to be a source of danger, and therefore renders them into wax. He does not recommend cutting out foul-brood cells, but only in removing cells with cocoon walls from combs used in supers. He says: "A colony containing but a single diseased cell is consigned to the wax barrel. It is the cheaper way than to run any risk."

[We ourselves have washed out super combs from foul-brood colonies, and used them again; but we do not recommend it. In fact, we do not advise temporizing with foul brood at all, but, rather, to get rid of it as soon as possible. Our reason for quoting from this article is because Mr. Townsend makes a valuable point in saying that if one uses extracting-combs from foul-brood colonies, he should be certain that no cell is left above that has ever contained brood.—Editor.]

* * *

HANDY DEVICE WHEN MOVING BEES.

Preparing bees for moving has always been to me the bugbear of migratory beekeeping. Andrews Brothers, who had an apiary near Glendora last season, have simplified this task very materially by using clasps for fastening supers to hive bodies. The screens are fastened on in the same manner. These clasps are made of galvanized iron. One end is fastened to the hive body with a screw. The other end contains a slot which hooks over a screw set in the super. Four clasps are used on each hive body. When hives are equipped with these clasps, instead of spending a whole day preparing a truck load for moving, the job is finished in a few minutes.—Levi J. Ray, Western Honeybee (May).

* * *

PRICE OF HONEY.

From the tone of reports, beekeepers are going to insist that they get a good price for their honey; and if they co-operate properly, and do not throw large quantities of honey upon the market regardless of price, it is possible that the price can be maintained at a fairly high level. With sugar selling at from 11 to 13 cents a pound,

there is no reason why honey should drop very much. Other food commodities have dropped very little, and in many instances have advanced. * * * It is, however, a peculiar condition just at present, and very likely the beekeepers themselves will have more to do with the honey prices during the coming year than ever before.—M. G. Dant, American Bee Journal (June).

* * *

REQUEENING LAYING-WORKER COLONY.

To requeen a laying-worker colony, H. D. Murry, as stated in the May Beekeeper's Item, removes three frames from the side of the hive and introduces in the vacant space a two-frame nucleus with an empty comb or sheet of foundation between the nucleus and the laying workers. When requeening cross colonies he sometimes uses a nucleus in this way, and sometimes places the nucleus in a super above the colony to be requeened, a newspaper intervening.

* * *

WHY NOT RAISE A LITTLE COMB HONEY?

There will always be a certain demand for comb honey on the part of a consuming class that does not care for it in the extracted form. It is far wiser, therefore, to meet this demand, thus lessening the quantity of extracted honey materially and providing an opportunity for a better price for a more limited supply of this form of honey. Yes, we too believe it will be a good idea to put on a few comb-honey supers.—Louis H. Scholl, in May Beekeeper's Item.

* * *

SHIPPING HINTS.

Some shipping hints are given by I. B. Saunders in the May Beekeeper's Item. He says 75 per cent of the 60-pound cans they receive have only one handle. Much stronger handles should be used. Also greater care should be taken not to drive nails into the cans nor use cases with projecting nails that might wear a hole in a can. In a dry year or in cool weather, the extracted honey put with comb honey, he says, should be heated. He also gives the good advice that cans should not be left uncovered, since foreign matter is certain to get into the honey.

* * *

DECOY HIVES ILLEGAL.

Riverside County, always in the front where the interests of beekeepers are concerned, has passed an ordinance forbidding putting up decoy hives in trees along the highways or on any public property.—Western Honeybee (May).

* * *

The California Exchange's purchases of cans and cases for 1919, says the May Western Honeybee, will make up two large trainloads of cans and one trainload of cases, worth about \$180,000.

* * *

There is money in bees; but to get it out of them it often needs a skillful man.—Apicultural Journal (April).

QUESTION.—I am a bee-keeper on the Isthmus of Tehuantepec. Honey is worth here \$1.00 a gallon, and wax \$1.12 a pound, U. S. currency. How should I work my bees to get a maximum of wax and limit the production of honey? Mexico.

Henry Knabe.

Answer.—We have never tried raising any great quantity of wax, and therefore we do not feel competent to answer your question. We remember one, W. J. Hughes of Yuma, Ariz., in 1917 more than doubled the output of wax; but the amount he secured was probably too small to interest you. At the beginning of the honey flow he confined the queens, by excluders, to the lower stories, and in the two supers above the excluders he placed from six to nine empty frames, the frames being interspersed among those having combs. As soon as the frames were filled with comb and honey he cut them out and dropped them into the cappings-box. At the close of the day's work the combs were thoroly crushed and chopped with a shovel, and the next day run thru the capping-melter. The results did not come up to his expectations; for at the close of the season he found that he had $2\frac{3}{4}$ pounds of wax for each 100 pounds of honey, whereas one has ordinarily 1 pound of wax to each 100 pounds of honey. You, doubtless, had in mind the raising of a much greater amount of wax than this. Still, under these conditions Mr. Hughes felt that the practice had paid him, since he believes there was less swarming than there would have been had the frames all been filled with combs. He said, however, that during an exceedingly hot time some of his combs fell down from the frames because they were not wired, and the result was that several of his best colonies were destroyed.

Questions.—(1) How many colonies can one man keep? (2) How soon could a person build up about 200 to 300 colonies from about ten swarms? (3) Has the bee business any future? (4) What amount of land is required to start a good-sized apiary? (5) Would you recommend getting a job in a large apiary?

Elmer Schutte.

Illinois.

Answers.—(1) For a beginner we would not advise more than three or four colonies. These may be gradually increased as fast as experience is gained, until one has perhaps 300 or 400. If more colonies are desired, it will be necessary to have helpers. According to some authorities twice the number could be managed in certain localities with help only now and then. (2) It would be possible for an experienced beekeeper to build up from ten colonies to 300 in three years; but an inexperienced person would not be able to do this. In fact, he might not have more than 30 colonies, or even less than the number he started with. (3) Yes. But this does not mean that any man who takes it up can make a success of

GLEANED BY ASKING

Iona Fowls

it. (See page 427 of this issue.)

(4) One does not need to own land in order to start an apiary. It is easy to find some farmer who will be willing, for a nomi-

nal rental, to allow one to place his colonies in the orchard. (5) Yes, it would be a good plan to work for some beekeeper until you have gained a little experience.

Questions.—(1) I have been reading Mr. Somerford's method of forming nuclei, and am troubled to reconcile his tightly packing with grass, etc., on account of the statements on page 751 of the A B C book relative to smothering the bees so easily, and in so short a time, by closing their door. (2) In May Gleanings, Miss Fowls, page 327, suggests that frames of eggs and larvæ from the lower story of the brood-chamber be placed in the upper one, replacing them with empty combs or foundation. This transfer could not be made with my equipment, since the brood-chamber is so much deeper than my supers. What other apparatus would I need, then, in the way of a second story? (3) Is an ordinary super ever used as a second-story brood-chamber?

Georgia.

W. A. Northrup.

Answers.—(1) Usually a small nucleus may have its entrance closed for a short time with grass; but during very warm weather there is danger of smothering the bees by shutting them in so closely that it is impossible for them to escape. The reason so many have used the Somerford plan with success is because the nuclei were so small. (2) If the supers were shallow it would be impossible to move the frames of eggs and larvæ to the second story unless one removed the center frames from two shallow supers and hung the deep combs in the space thus left vacant—a very awkward arrangement, however, and we do not recommend it. The remedy for this would be to have one deep super for each hive; for even those beekeepers who prefer shallow extracting-supers often provide themselves with one deep super for each hive, to use at the time of swarming. (3) Yes, the ordinary deep super has exactly the same dimensions as the lower brood-chamber.

Questions.—(1) I have read a great deal about placing frames of brood and adhering bees in other hives. Why are the bees not killed? Is it because they are young? (2) Is there any danger, when picking up queens, that, upon placing them back on the frame, they will be balled? (3) What is the lowest temperature at which brood may be safely exposed and the greatest length of time of exposure? (4) With reference to the Alexander method of dividing, why do not bees left with brood return to their old location? Are they only young bees? Does brood at its latter stage make enough heat for it to finish growth and emerge of itself, or must it be kept warm until the very last day by attendant bees?

Arthur M. Cole.

New York.

Answers.—(1) When bees are placed in the hive of another colony by simply removing entire frames of brood with the adhering bees, altho those bees have a some-

what different odor from that of the colony in which they are placed, still they act quite naturally. In fact, many of them do not realize that anything has happened if the work is done carefully. Usually when fighting occurs the bees have been excited, and this helps to bring on the trouble. If a frame of young bees was taken, there would be no danger from fighting. When the frame is taken from the hive, and gently shaken, only the young bees are left on the comb, which may then be inserted in the other hive. (2) Bees would seldom ball the queen because she was picked up in the hand, and yet they would be more apt to do so than if she were not touched. Doubtless the hands change her odor somewhat. (3) When frames are handled, the bees cover the brood so that the temperature may be higher than that of the surrounding air; but we can not say as to the exact length of time required to chill the brood. However, the brood should not be handled at a temperature lower than 60 degrees Fahrenheit, and even then we would not leave it exposed longer than necessary. (4) When the brood is moved to a new location, some of the bees do return to the old stand, but these are the old bees. All of the young ones stay with the brood; and since they have never flown from the old hive they will always return to the new location. You see, by the time the brood is moved to the new location it is all sealed, and is, therefore, easier for the bees to keep warm. There is quite a little heat in the capped brood, but not enough, without the presence of bees, unless, of course, one were to put the brood into a room at a temperature of about 90 degrees.

Question.—Can you tell one how to distinguish swarming-cells from supersede cells?

England.

W. B. Wallace.

Answer.—In case of swarming, colonies usually build many more queen-cells than when superseding their queen. Furthermore, if the brood is carefully examined, one will note that in case of supersede there is not nearly so much brood; and he will often notice, from the scattering way in which it is placed, that the queen is apparently failing. Sometimes colonies start out with the apparent intention of superseding but end by swarming. Supersede cells are generally more uniform in size than swarming cells.

Questions.—(1) After the middle of April I put all weak colonies over strong ones (according to the Alexander plan), and, due to rush of work, I have not used many excluders, letting the queen have access to 25 combs. She invariably goes above, but is crowded down as the super is filled with honey—sometimes entirely so. I believe I do not get as much honey this way, and there is the trouble of having brood in the super. These combs containing brood and honey are left on the hives and filled with a later honey. I mark these combs and reserve them for winter stores. (2) Referring to the swarm control you practice, why is it necessary to tear out any cells in the top hive? I have frequently raised brood above an excluder, and had the bees develop cells to which I have never paid any attention. In fact, I should have never known that cells were

there by any results. (3) Why would it not be perfectly practical to allow the queen to mate from the top hive. (4) What is a desirable method or the most up-to-date practice of heating honey in the combs for extracting.

A. W. Fleming.

New York.

Answers.—(1) In the method you have been using, do you not think that you would like it better to put the queen in the lower story below a queen-excluder after the danger of swarming is over? In that case, as soon as the brood above the excluder hatches, the bees would fill the cells with honey, and you would, therefore, overcome the objection to which you refer. (2) We should not like the plan of allowing queen-cells to hatch above an excluder when there was no upper entrance, since when handling the colonies these virgins might get into the lower story quite easily. More than this, we have had reports of such queens passing thru the excluder and leading out a swarm. If we did not tear down cells in that upper story, then if several colonies were treated the same day they would require attention again before our next trip, for we plan to visit our apiaries every seven or eight days. More than this, if we tear down the capped queen-cells, and again at the end of seven or eight days tear down all but one queen-cell, we then know that it is impossible for the bees to raise another in that story, since the brood will then be all sealed. (3) If a small entrance is left at the upper story, it is quite practical to mate the queen from above. This is when several supers intervene between the lower and upper brood-chambers. We do not think you will like the plan after the honey flow stops, however. (4) It has been pretty well proved that it does not pay to warm combs except as the whole room is warmed. In many extracting-houses they build a fire or have an oil stove, or something of that kind, to raise the temperature of the room for a few hours before extracting. It is impractical to attempt to heat two or three supers of combs by putting them for a short time in a high temperature, for there is danger of melting the combs. The safest way, therefore, is to raise the temperature of the room to a point, say, between 80 and 90 degrees for a few hours. The honey is then thin enough for extracting, straining, etc.

Questions.—(1) Miss Fowls, in the Beginners' Lessons, tells what to do "when the bees are bringing in nectar." I want somebody to tell me how one is to know when nectar is coming in. Are they always bringing in nectar when their baskets are laden with pollen? (2) Please let me know the prevention or cure for the cockroach pest in hives.

W. N. Northrup.

Georgia.

Answers.—(1) Bees sometimes bring in honey and pollen at the same time, but they may bring in either load without the other. When bees begin bringing in honey they do not fly as lightly; also, there is a busier kind of humming which you will soon learn. The bees are also better-natured, and not inclined to rob; and when the hive is opened

unsealed honey will be noticed that will spill out of the combs quite readily. This is the nectar that has not yet been completely changed into honey. (2) We have known cockroaches to enter hives; and yet, if the colonies are kept strong, we have never known them to do any special harm.

Question.—Today one of my colonies swarmed, and all settled on the ground and on the leg of the chair holding the hive, and started to go back into the old hive. A lot went back, and then I got a new hive and set it there and took a large spoon and took the cluster off the leg and put it on the top of the frames. I found the queen in one spoonful. I put her on the top, and she went in. Then I put the lid on and all the rest that were on the chair and ground went into the new hive; but none which returned to the old hive afterward went into the new hive. Did I do right? or should I have allowed them all to go back into the old hive? I believe they would have done so, for they were going back as rapidly as they could. Miss Laura Keel.

Nebraska.

Answer.—Your method of hiving bees was all right, only that it should have been applied a little sooner—before the bees had begun retiring to the old hive. If you find that there are not nearly enough bees in the new hive, it would be a good plan to take several frames with the adhering bees from the old hive and gently shake the bees from them in front of the new hive. If they are not shaken hard, only the older bees will fall off, leaving the young ones which should be returned with the frames to the old hive. In doing this, care should be taken not to get the frame having the queen-cell from which they are to raise their new queen; for if this comb is shaken, the queen will probably not hatch.

Questions.—(1) Last Sunday one of my colonies swarmed while I was gone, and a man tried to put them into an old box. On my return I asked him whether he thought it proper to hive those bees since they were on my own lot, and only 30 feet from the hive. He said that as long as I had not forbidden him on the ground he had a right to trespass. Now, had this man a right to trespass, and hive those bees on my premises? (2) Have I a right to go to my neighbor's orchard, without asking him, and hive a swarm of bees that left my apiary? (3) How can I see the queen when hiving?

Indiana.

Chas. J. Maurer.

Answers.—(1) If the man followed those bees from his own hive to your land he would own the bees, but he would have no legal right to touch them. Of course, if they came from your own hives he had still less right on the land. (2) According to law, if your own colony left the hive and went to a neighbor's orchard the colony would still be yours; but in order to hive the swarm and take it home it would be necessary to get permission from the owner of the orchard. As a matter of fact, however, there is not one person in a hundred that would think of objecting to allowing a man to hive his own swarm of bees, even if the swarm did happen to be trespassing at the time. (3) It is not necessary to see the queen when hiving a cluster of bees. The only time it is necessary to see the queen when hiving is when she has clipped wings and is not able to join the cluster.

In this case she will doubtless be found crawling in the grass in front of the hive.

Question.—I had a colony of bees in a box hive, and I wanted to transfer them into standard hives. So I put a standard hive on top of the box hive with full sheets of foundation in it, and then drummed the bees up into it. When I got the queen up I put an excluder between so she could not get back down. In two or three days I looked at them, and all the bees were back down, and the queen was on the excluder dead. What was wrong?

Indiana.

W. Crumrine.

Answer.—The plan you used would have been successful if you had only left one frame with a little unsealed brood above. If this had been done the bees would not have deserted the upper story.

ANSWERS BY DR. C. C. MILLER.

Questions.—(1) If queen mailing cages are bought with candy in them, will the candy remain good until the following year? (2) If the brood-chamber is full of capped sugar syrup, will they carry any of it up into the supers when they are bringing in nectar? and will they carry it up when they are enlarging the brood-nest? (3) Do you think it is a good idea to get the small honey-boxes built out with sugar syrup so that they will be all ready when the nectar comes in? C. C. Mackey.

New York.

Answers.—(1) Not so good. It is likely to be too dry; but if kept for a time in a moist place—perhaps a steamy place—it might be all right. (2) Bringing in nectar would not send the syrup into the supers; enlarging the brood-nest might. It is well to be at least very careful about such things. (3) I do not believe it would do at all. You cannot get comb built out without having something stored in it, and you certainly do not want any syrup stored in your sections.

ANSWERS BY H. H. ROOT.

Questions.—(1) I am thinking of building something like the Bartlett-Miller capping-melter, and should like to know about how large to make it. I had thought of making the melter with half-inch tubes along the top. The object of the small tubes is to let the honey escape without having to travel very far and becoming discolored by being heated too long, and getting hotter than necessary. I should like your advice as to small tubes. There may be some objection that does not appear at first sight? (2) Would brass tubes be apt to injure the honey? (3) What should be the distance between the tubes? C. E. Andrews.

Nebraska.

Answers.—(1) I would hardly care to encourage one in making a capping-melter on the Bartlett-Miller principle. Small tubes have been abandoned by several who have tried them. Mr. Bartlett-Miller himself found that they were not satisfactory. They soon fill up with propolis, and bits of cocoons slide off with the cappings. Furthermore, it is almost impossible to melt the cappings as fast as they drop down from the knife on steam-heated tubes as small as these. In spite of all one can do, he will overload the tubes unless he has an extremely large surface, say a melter several feet long, which would be impractical. (2) Brass tubes would be very apt to discolor both the honey and the wax. (3) The tubes can not be much further apart than 3/16 of an inch, else the cappings will fall thru unmelted.

WHILE July and August are in the dead of winter in Australia and New Zealand, for the majority of beekeepers in the the northern part of the United States and in Canada these months tell the story of the year. The time of the honey harvest is the culmination of the beekeeper's hopes, the realization of his ambitions, and the climax of his efforts.

Frequently the secret of the difference between success and failure lies in the attention paid to small details. How often is the fruit within our very grasp and we stumble in the grasping of it.

In June the comb-honey producer has had his hands more than full in keeping the bees contentedly at work in the sections and curbing their feverish desire to swarm. Swarms there will be in a comb-honey yard. A beginner need not be discouraged if he has considerable swarming, for the most experienced comb-honey producer, in some years at least, can not absolutely control the bees' desire.

Queen-excluders Unnecessary for Comb Honey.

Fortunately, few queens show much tendency to enter comb-honey supers or to lay

TALKS TO BEGINNERS

By H. H. Root

and the supers. An occasional queen may show a tendency to go above, but it is better to replace that one queen than go to the expense of using excluders on all

the colonies in the apiary.

Pollen in Sections.

Occasionally quite a few sections, otherwise perfect, are ruined for market by the presence of cells of pollen. If there is plenty of brood to use up the pollen and if the bees have plenty of room for the storage of pollen in the brood-combs, they are not so likely to store it in the sections, for they prefer it as close to the brood as possible. But if, thru neglect or mismanagement, the bees have been storing a rush of honey in the brood-combs, thus limiting the space for brood-rearing and leaving no place for storing pollen close to the brood, some of the pollen inevitably goes into the sections. Such sections had better be sold locally, possibly to friends or neighbors to whom the presence of the pollen can be explained.

When to Take off Comb-honey Supers.

It is rarely wise except at the end of the season to wait until the last section is completely capped over. Better get the supers off when the sections are completely finished with the exception of two or three at each side. These can be placed as "baits" in the next super to go on. Remember that the sooner a section of comb honey is taken off the hive after it is completely sealed over, the whiter and nicer it will be. If left on too long it becomes what is called "travel stained." Especially is this true when the honey flow ceases. The bees seem to take peculiar delight in walking all over the comb honey and in depositing more or less propolis here and there, giving it an uninviting varnished look.

The Bee Escape-board.

The beginner had better use a bee-escape to get the bees out of comb-honey supers. True, they may be smoked out, or jarred or shaken out, but the bees when rudely disturbed are more likely to uncup some of the sections. Therefore, the more quietly they can be got down off the honey the better. Moreover, in trying to jar or shake bees out of a super there is always some danger of starting robbing. Always put the finished super on top of the others, then slide the bee-escape under it. In this way the bees will not be trapped out of the unfinished supers. A fresh super of sections filled with foundation may be put on before a finished one is removed, except of course at the last of the season.

Taking Extracted Honey.

The escape-board is not absolutely necessary in freeing extracting combs of bees, altho the new ventilated type of escape-



Extractor and straining can.

eggs in the sections. The section is abnormally small for a brood-comb, and the queen seems to realize this, hence the comb-honey producer as a rule does not need to use a queen-excluder between his brood-chamber

board, with generous space each side of the escape covered by wire screen, is far better than the old solid escape-board. Therefore extracted-honey producers are more and more coming to use the bee-escape. If slipped under full supers in the afternoon, by



Most beekeepers uncapping beginning at the bottom and cutting up, the cappings hanging clear of the uncapped surface because the top of the comb is tilted forward gradually as the knife moves up. The cappings in the barrel should be frequently stirred and punched with a stick to facilitate draining.

the next day the combs may be taken out with hardly any bees on them. No fuss, no uproar, no stinging.

If the bee-escape is not used each comb may be given a sharp shake or two in front of the hive, the bees falling down on the alighting-board, then each side of the comb given a quick brushing before placing the frame in the specially prepared carrying box, preferably on a wheelbarrow. (It is necessary to work fast to avoid robbing.) Combs should not be extracted that are not at least three-fourths sealed over. The bees can do the ripening of the honey cheaper and better than man can possibly do it by any artificial methods. There is nothing to be gained and everything to be lost by extracting green, unripe honey, which in all probability will ferment before it reaches the consumer, thus killing future sales and injuring the honey industry generally.

It is not a good plan ordinarily to take

the honey off the hive one day and extract the next. The sooner the honey is extracted after the bees are off the combs, the better, for being thin by reason of its higher temperature it extracts easier and strains faster. Here lies the most important advantage of the ventilated escape-board. The honey above the escape is subject to the high temperature of the hive, and does not cool off as it does when a solid board is used.

The Arrangement of the Equipment.

An expert may extract honey with an inadequate equipment and do tolerably good work, but a beginner should not attempt extracting until everything is convenient. Even the expert learns that time spent in making adequate preparation saves money in the end.

The extractor must be solidly anchored. There is no greater nuisance than that of trying to use an extractor that wobbles all around. If conditions are such that the extracting is done in a two-story building, the upper story of which is on a level with the beeyard, and the lower story on the level with a driveway, that is ideal. The extractor may then be placed directly on the floor, the gate standing over an opening leading into a tank in the room below.

A honey-pump is the cheapest substitute for such an ideal condition, where the natural surroundings prevent any such arrangement; but the pump itself is not to be considered for a hand-driven extractor. Therefore, we will consider the equipment for the beginner who has neither of these ideal conditions.

The extractor should be secured to a solid box of such a height as to permit a galvanized pail to be placed under the gate. There should be a tin tray about eighteen inches square and two inches deep for the pail to stand in, so that, if by chance the pail runs over, the honey will be caught. It is easier to empty the tray than to mop the floor. However, never leave the extractor gate open while the extracting is going on. The pail will run over, sure as fate. Wait until the level of the honey has nearly reached the lower bearings of the extractor, place the pail under the gate and jerk the handle wide open; the full stream will quickly fill the pail, which can then be emptied into the straining can, the gate always remaining closed except when the pail is being filled.

Between the extractor and the door should stand the uncapping apparatus. A cheap cracker barrel with both heads knocked out, with a quarter-inch mesh screen nailed on the lower end makes an excellent uncapping can. A cleat nailed on each side of the barrel about four inches from the lower end will support it in a galvanized tub. A narrow board should be nailed across the top of the barrel with a projecting nail point in the center on which to rest the end-bar of the frame while uncapping the comb. Such barrels are cheap and several of them can be prepared in advance at very small

(Continued on page 474.)

MAY the Lord in his great mercy bring to your hearts this message that I am dictating to you on this 2d day of June, 1919. At different times recently I have been thinking that, before long I shall probably dictate my last Home paper; but rest assured, dear friends, that, as long as I have life and

strength, this department of our journal shall be kept up. Just now there is a series of articles appearing in the *Sunday School Times*, entitled "How Lawyer Scofield was Won to Christ," by my good friend Charles G. Trumbull. Well, in the issue for May 17, Mr. Trumbull writes as follows:

Shortly before this chapter of the Life Story went to press, the writer received a letter from Dr. Schofield that he gladly incorporates here, so that many may rejoice in the marvel of its testimony.

After the above, the letter was given; but I have space to put in only the concluding earnest appeal to his long-time friend Mr. Trumbull, as below:

And—oh! Trumbull, put it into the story, put it big and plain: instantly the chains were broken never to be forged again—the *passion for drink was taken away*. Put it "Instantly," dear Trumbull. Make it plain. Don't say, "He strove with his drink-sin and came off the victor." He did nothing of the kind. Divine power did it, wholly of grace. To Christ be all the glory. C. I. SCOFIELD.

The point in the above that particularly impressed me was the expression, "He did nothing of the kind." The reason why it impressed me is because it was so emphatically my own experience. I did not, like Scofield, strive with the *drink* habit; but I *did* strive with Satan; and I am impressed that it does not make very much difference how he comes—it is all the same thing. Again and again did I resolve to break loose and be a man, but only to be tripped up once more until I lost faith in myself and faith in God, and, I fear, faith in everything. I shall always remember vividly going out into the woods one Sunday afternoon. I sat down on a log, and thought it all over. I went over my childhood and thought of my good mother's teaching, and how *she* would be grieved to find that I had, after all, turned out a

OUR HOMES

A. I. ROOT

He brought me up also out of a horrible pit, out of the miry clay, and set my feet upon a rock, and established my goings.—PSALM. 40:2.

Let the words of my mouth and the meditation of my heart be acceptable in thy sight, O Lord, my strength and my redeemer.—PSALM 19:14.

If ye, then, being evil, know how to give good gifts unto your children, how much more shall your heavenly Father give the Holy Spirit to them that ask him?—LUKE 11:13.

wreck. Yes, I meditated that if things should go on as they had been going I *might*, in process of time get behind prison bars. Finally, I rose up and raised my right hand and called on God to witness that henceforth and forever I would be a different man. I started home feeling brighter and happier, without a single

doubt in my mind but that I, and I *alone*, mind you, could carry out what I had been planning and proposing. Now, please note, dear reader, I did not say a word in my pledge out there in the woods, in the way of asking *God* to help me. I alone was going to do it all. What was the outcome? I am ashamed to tell you. Almost before I reached my own door Satan tripped me up more completely than ever before. I lost heart. I said it was of no use. Let me digress a little.

Months later, when I really *knew* the good Lord had lifted me out of the "miry clay," and placed my feet on the "rock," I visited a poor soul who was a slave to intemperance. I told him what the end would be if he kept on; but he said something like this:

"Mr. Root, I realize all you say; but when I get astride that horse I have got to ride wherever it goes. I really can not help myself."

Now, I had that same feeling after that final defeat. Please read that sentence again from Scofield. He said to Mr. Trumbull, "Do not say he strove with drink and came off victor." Scofield, like myself, gave up discouraged and defeated. He adds with emphasis that he "did nothing of the kind. Divine power did it. To Christ be all the glory."

I often used to work away on toward midnight when things were crowding. Well, one night when the shutters to the store had been put up, the lights put out, and I was alone in the darkness, I knelt on the dusty floor and prayed. It had been years and years since I had uttered anything in the form of prayer, and the words were something to this effect: "O God,

if there be a God, have mercy on a poor, discouraged and defeated human being." I do not know what I expected or whether I expected anything; but something *unexpected* came into my mind. Put in words it seemed like a voice saying, "Child, what do you want? What is it that you crave?" Then I answered aloud, continuing my prayer, "Give me back, if it is a *possible* thing, the happy innocence of childhood." It was so long ago I can not remember distinctly the outcome; but for the first time it dawned on my consciousness that I was to be relieved from responsibility. I was to stand to one side and let the Lord do the work.* I went home with a new and happy feeling in my heart that I had not had for years and years. My mother's teachings vividly came back; and as soon as I reached home I hunted up the old neglected Bible. I opened it somewhere in the New Testament; and, oh, how different that Bible seemed! A great searchlight, as it seemed, was turned on those precious pages. I think I kept reading until after midnight; and with the morning light I started out with my feet on the solid Rock.

Now, the great point in the above that I could not understand was that help outside of our own selves is promised to all who accept the help of "the Lamb of God that taketh away the sin of the world." It is almost fifty years since what I have been telling you happened. I have told you again and again about that little prayer of mine. I have sometimes called it my "emergency prayer." I have told you, too, that after a while, when I had got so much in the habit of breathing it inwardly (or even out loud, when I was away all alone) that this little prayer would come up of itself, and it seemed almost as if some good friend were near by; and when I was tempted to be harsh or severe, before

I opened my mouth the "Lord, help," would seem almost as if spoken by somebody to bid me be careful.

Now, during the past few months another experience—a wonderful and most precious experience—has come into my life. Some of you will recall what I have said about our second text—"Let the words of my mouth and the meditation of my heart be acceptable in thy sight." Last fall, after I got back to my Bradentown home, I repeated the text in the prayer-meeting, and remarked something like this:

"My good friends, I do not know but I have been priding myself for years past that I have made very few hasty speeches, or said things that I was sorry for afterward. Perhaps I have been priding myself that I have succeeded pretty fairly in regard to 'the words of my mouth;' but when it comes to the second part of this beautiful text, 'let the *meditation of my heart* be acceptable in thy sight,' oh, dear me! it seems as if I shall never be able to stop thinking of things that are bad or unprofitable. And I prayed over it, and my prayer was answered. God, in his wonderful kindness, love, and mercy, sent a little monitor—perhaps it was the 'still small voice' that is promised to his children." Let me digress a little.

A great part of my good father's life was made unhappy because of the faults of others. A line fence was not where it ought to be, cutting off perhaps half an acre of his farm, and this made him unhappy for several years. Well, I have thought sometimes that I inherited this disposition to dwell on things of this kind until they spoiled my peace of mind. See the following, which I clipped from the little tract, "How to be Happy when People Abuse You."

THE DEFEAT OF INJUSTICE.

No one can ever afford to think about any injustice he receives. It is disaster and destruction to do so. It is like deliberately lifting a glass of poison to our lips and swallowing it. Injustice inflicted upon us never harms us until we dwell on it. While we ignore it, and do right, it is powerless against us. When we begin to turn it over in our mind, it starts its murderous work upon us. It soon exaggerates itself, blinds us, rankles, inflames, embitters.

By the way, the above, also, comes from my good friend Trumbull. Well, even of late years (I am ashamed to confess it) when I have not been strictly truthful, or when I am tempted to criticise somebody because he did not live up to my ideas or notions, I get into an unhappy frame of mind. One day when I was feeling stirred up by something of that sort I was almost startled at something that seemed like a voice that suggested "meditation of my

*It occurs to me that a little further explanation is needed right here. I do not know how long I remained on my knees. Some way it was made plain to me that before I could have back the innocence of childhood there would have to be an "unconditional surrender." The words of an old hymn express it vividly:

Here I give my all to thee—

Friends and time and earthly store;

Soul and body thine to be—

Wholly thine for evermore.

Before I consented to such a surrender as the above there was quite a debate going on in my mind. I might be called on to give up bee culture or this little journal. As I mentally reviewed the conditions expressed in the above verse I began to think that (like poor Germany) the conditions were too hard; and then the new and precious light began to fade away and old temptations came back. I finally promised the good Lord to let *him* lead and I would follow. Of course, Satan whispered that it would ruin my business and ruin my life. Did it do so? Not much.

heart." I felt like looking around to see who it was that spoke. In a little while I caught myself again dwelling on something that was unbecoming a follower of the Lord Jesus Christ, especially for a man of my age. Then again came that "still small voice."

It would seem that my good friend Ridgeway, of the *Sunday School Times*, has had a like experience. See below, clipped from his "Busy Men's Corner":

THE GREAT MYSTERY.

There came from heaven a sound as of the rushing of a mighty wind (v. 2). Did you hear the Holy Spirit? Have you ever had any intense religious experience in which you "certainly heard something," and turned to see? Have you ever felt the pressure of the Holy Spirit in a time of deep feeling? Well, be sure there are lots of folks who have had such visits from Heaven, and I am one of them. They are too sacred to talk about, and some of them too holy to think too much and too long about (2 Cor. 12:4). One of earth's greatest mysteries is the mystery of the Holy Spirit.

Now a word more, before closing, in regard to the second text. It was David's *prayer*. What does it mean that a human being should make such a prayer? A friend of mine, who has been reading

GLEANINGS for many long years, rejects the Bible and its teachings. Let me ask him where else in the whole wide world of literature can we find anything like that little text? Suppose the whole wide world should make this prayer their prayer. The first half-dozen words imply that David is talking to his heavenly Father, God, who created him in his own image. The next half-dozen words recognize the fact that the Creator reads even our thoughts. Then how beautifully that word "meditation" comes in! and the idea of how this wonderful thing is to be accomplished seems to imply the impossibility of it, without help; and this help he expresses as "my strength and my redeemer." Does not this text foreshadow the coming of Christ the "Redeemer" of the world? How many professing Christians are there who dare make this prayer their prayer? We shall indeed have a "new heaven and a new earth" when the whole wide world can honestly say, "Let the words of my mouth and the meditation of my heart be acceptable in thy sight, O Lord, my strength and my redeemer."



POULTRY NEWS

"HOW TO MAKE HENS LAY."

My good friends, I am glad to be able to answer the above oft-repeated question in just two words—*love them*; and, by the way, those two short words will do a lot toward helping things along in this great world of ours. Love your work, and especially love your domestic animals; love your plants and trees; and above all and over all, love humanity. Yes, love poor, feeble, infirm, neglected, and *forgetful* humanity. Love even *your enemies*. Love humanity as God loved it when he "gave his only begotten Son that whosoever believeth in him should not perish but have everlasting life." Let us now get back to the chickens.

I have often mentioned my good friend Abbott of Bradentown, who for years has kept chickens away up into the thousands or close to a thousand anyhow. But when eggs were away down and feed away up I fear he became somewhat discouraged; and last season, when honey brought such a high price I think he rather neglected his poultry. When I first met him last fall I said, "Friend Abbott, how many laying hens have you?"

"About seven hundred."

"Well, about how many eggs are you getting a day from your seven hundred hens?"

"Oh!" replied he, smilingly, "just now we get six or seven—sometimes a little more."

"Why, you don't mean to say that you get only *six* or *seven* eggs from about seven hundred hens, do you?"

He laughingly replied, "Mr. Root, I shall have to acknowledge that I do not pay much attention to the hens since we have been so busy with the bees; and I really do not know how many my man does get; but it is very few."

Now, friend Abbott had some hens that came from my Lady Eglantine stock, and I knew they ought to lay. I told him I wanted to buy about a dozen hens for experiment. I could tell them from the others because they had leg-bands. Well, even if they did have leg-bands it was something of a task to hunt up a dozen of them out of six or seven hundred. They were going to take them off the roost, but neglected it until I got around. So he caught them with a pole with a hook on the end of it, and this scared the whole flock so badly

that I felt sure it would interfere with their laying. When I got them home they were so badly frightened that they put off into the woods, and I could hardly call them back to get their feed. You may remember that I have been feeding my poultry in galvanized washtubs, the tub being set on a post just high enough so the hens could get in while the Florida rats could not. Well, now, that is a very good way to feed Leghorns to save time; but in one respect it is not the best way. I worked my very best for two or three weeks to become acquainted with those twelve hens, and to make them understand I loved them. I made it a study to find out what things they like the best, and to carry them some little delicacy or something they liked, two or three times a day. I do not think I got an egg till three or four days had passed, and it took two or three weeks to get them all to laying. But they finally became so tame I could pat them on the back and call them "good biddies" and then they began to lay. One hen died during the winter; but from the eleven remaining I soon got nine or ten eggs every day. When we started home to Ohio I carried the eleven over to a beekeeper friend two miles away. To avoid having such another scare in the transfer I shut them up the night before, and then put them in very light loose burlap sacks, four hens in a sack, the next morning. They were so well acquainted with me that they were not frightened at all, feeling sure I was not going to hurt them.

By the way, for moving poultry short distances I think a loosely woven burlap sack the very best thing you can use. It is better than a box and putting them all in together and leaving them loose. The sack gives them room enough to stir around, and plenty of air, and yet they can not well see what is going on around them. I took them in my electric automobile that makes no noise, and they were just as quiet when I handed them over to my neighbor as when I started with them. Below is the result:

Dear Sir and Friend:—The Eglantines feel very much at home, being contented and very tame. I had their house all furnished before I put them in, with litter on the floor and feed scattered in the litter. I wanted the first impression a good one, and I think I succeeded as they gave me 11 eggs the first day. My six pullets, not wishing to be outdone, gave me six eggs, making 17 eggs from the 17 hens and pullets—a result that probably will not be duplicated this summer. I am getting from 10 to 12 a day now from the 17.

I am pleased to note you reached home all right.
E. S. DART.

Manatee, Fla., May 12, 1919.

From the above, my friends, you see the result of handling chickens in such a way

that they will not be worried nor frightened at all; and the reason for this is because they know by experience, that you love them and would not harm them needlessly. Another thing is, these eleven hens were of the Eglantine strain—a strain of White Leghorns that are bred to lay and for nothing else. The owners of the Eglantine Farms pay no attention to fancy markings whatever. I do not think they care a cent whether the tails of the males stick up or hang down. They are just bred for eggs. The strain is bred to be gentle and quiet, because quiet gentle hens are more likely to lay. I have had these Eglantines more or less now for four or five years, and they beat any other breed of poultry I ever had anything to do with. Just now while I write (May 21) we have only four Eglantine hens; and these four furnish three or four eggs a day, which are about as many as Mrs. Root and I care for.

Now, to avoid having you write me, I would say that the Eglantine Farms are at Greensboro, Md. I think you will be pleased with the circular they send out.

MAKING HENS LAY IN DECEMBER AND JANUARY WHEN EGGS BRING THE HIGHEST PRICES.

On page 53 of the December issue I mentioned this matter; and since then I have noticed by the poultry journals that in California they are making the long nights shorter by means of electricity on a large scale. Furthermore, Mr. M. F. Bryant, Mr. Calvert's son-in-law (and by the way, the father of one of our little great-grandchildren), has been, during the past winter, experimenting with an electric light in the henhouse. He turns on the light about the time the hens seem inclined to go to roost, and keeps it on till about 9 o'clock. At the same time they are provided with plenty of litter, and they keep scratching and eating so as to make the period without any food while on the roost about as short as during May and June; and he reports the result as being highly satisfactory. Not only did he succeed during the winter months in getting 18 eggs from 18 hens on one occasion, but he says he did it several times. The average was 16 to 17 eggs a day. The breed was the Plymouth Rocks; and the above result is certainly as good as or better than I ever got from the Leghorns. Of course the big breeds would have to have more food. Down in Florida during the month of December we got as high as 60 cents a dozen for eggs; but when I came away in April, at one time they paid only 30 cents.

Now please consider this electric-light business is, after all, right along in line with the two words I suggested. Giving them the electric light and extra food in the nighttime is only one of the ways of letting the biddies know that you love them. By the way, on this 22d day of May the weather is getting so warm that I am putting up a pole attached to the evergreen trees so the four biddies can roost out in the open air when they prefer to. When it is cold and stormy they can go inside their little poultry-house. You will find a picture of said poultry-house and the biddies on page 878, GLEANINGS for 1916. At that time I called it my "outdoor sleeping porch" for the Eglantine chickens. Later, the four Eglantine hens that I now have that are giving four eggs a day a good deal of the time, are away on other premises during the six months we are absent. But they all seem glad to get back to their "old hunting grounds" among the evergreen trees. They remember their drinking place, their outdoor sleeping porch, and the fact that they have a ramble outside with the gate open every day about sundown. In fact, they gathered about the gate about the time we used to let them out, the very first day they were put back in their old quarters. When I get back to Florida in November I find my chickens down there remember things just the same. Chickens oftentimes have better, and more accurate, memories than their keeper, and it pays to keep this in mind when you are striving to "make hens lay."

Altho I am making a long story of this, friends, I am impressed there is something further that should be added. It is a wonderful task for a hen to lay a fair-sized egg every day; and to do this she must have the best of feed, and have it at frequent intervals. During the part of the year when the nights are long the crop is crammed to its utmost capacity when she goes on the roost; but even this is not sufficient; and therefore, ordinarily, laying hens take a rest during the early fall and winter months. A molting period comes in about this time, and both together make the price of eggs run away up. Now, making the day longer and the night shorter by means of electric light gives her a chance to get sufficient feed to enable her to lay an egg every day much as she does in the months of May and June; and I want to add right here that neighbor Abbott's 700 hens gradually commenced laying after the days got longer, and during spring, and he had a very profitable egg crop. Now here comes something that should be well understood. Of course, you have seen ad-

vertised in the poultry journals and farm papers—yes, even in the religious papers—"dopes" to make hens lay. The advertisement reads that if you give the chickens their peculiar "condition powders," or whatever it may be, and it does *not* start them laying, you can have your money back. And I think that most of them—at least I hope so—*do* give the dollar back when asked to do so. Can anything be fairer? Well, most people think so; but please notice that these advertisements come in all the papers along toward spring, just at a time when the hens would naturally begin to lay; therefore the dope does the business—at least it would appear so, forgetting that hens at this precise time of the year would all at once begin to lay, even if they *didn't* have the "tonic."

THE CHAYOTE ONCE MORE.

My Dear Mr. Root:—Knowing your fondness for new things I send you by mail a "chayote" or mango squash. Plant the whole business, keep well fertilized, and you will have a squash vine for 8 or 10 years, bearing what is to me the most delicious squash I ever ate, cooked as you do summer crookneck and other squashes. Then too you can pack them away in dry sawdust and have them all winter. They are fine stock for pickles, being more crisp than cucumbers; they are also good fried as eggplant.

I forgot to state that the chayote will not fruit much till cool nights come in September when it will do business in great shape. I have had more than five bushels this season from two vines. I let them grow on my grape arbor. Sincerely yours,

J. C. BATES.

Lake City, Fla., Jan. 14, 1919.

With the above letter came two samples of the chayote squash—see GLEANINGS for 1917, page 641, where we picture and describe the chayote. See also pages 803 and 886. Our readers will note from the above that the two chayotes were received about the middle of January. Well, about the last of April, or 100 days after the receipt of the plants, one of the vines had grown so far as to give two very nice fruits or vegetables, or whatever you may please to call them. Mrs. Root and I both agree with what friend Bates says in regard to them. The Department of Agriculture has been, for two or three years past, mailing samples to plant wherever asked for. I do not know whether they are giving them away now or not, or whether my friend has any left of his "two bushels" from two vines.

The chayote is about the rankest grower of any vegetable I know of. I presume they can be started in the North in the greenhouse (like tomatoes and similar things) so as to bear some fruit at least, before frost comes.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Extra quality buckwheat extracted honey in 60-lb. cans. J. W. Hosie, East Aurora, N. Y.

FOR SALE.—Michigan's Best extracted honey in packages to suit; white clover, raspberry, milkweed, buckwheat.

A. G. Woodman Co., Grand Rapids, Mich.

HONEY AND WAX WANTED

WANTED.—Comb and extracted honey, also beeswax. Send samples.

C. S. Fryer, 386 Halsey St., Portland, Ore.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

WANTED.—Comb and extracted honey, car lots and less. Mail sample, quantity, and price.

W. Morris, Yonkers, N. Y.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations.

M. Betancourt, 59 Pearl St., New York City.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.

Hoffman & Hauck, Inc., Richmond Hill, N. Y.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston.

M. V. Facey, Preston, Minn.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

FOR SALE

HONEY LABELS.—Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

SEND TODAY for samples of latest honey labels. Liberty Pub. Co., Sta. D, Box 4E, Cleveland, Ohio.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now. Superior Honey Co., Ogden, Utah.

FOR SALE.—200 second-hand 60-lb. honey cans in good condition. John Kneser, Hales Corners, R. F. D. No. 1, Wis.

FOR SALE.—Pan Handle beekeepers, please note that you can buy Root bee supplies "next door." Will C. Griffith & Sons, Elm Grove, W. Va.

LANGSTROTH COMBS.—In plain hanging frames, built on wired foundation, free from any bee disease, for sale in lots of 100 or more, at \$20.00 per 100. Elmer Hutchinson, Lake City, Mich.

FOR SALE.—Two extractors, uncapping-cans, honey tanks, extracting outfit with supers, hives in flat. Bargain. Would take bees, queens, or honey. The Liberty Press, Box No. 224, Shenandoah, Ia.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.

R. & E. C. Porter, Lewistown, Ill.

SPECIAL SALE.—One-story 8-frame dove-tailed hives, in flat, with telescope $\frac{3}{4}$ wood covers, in packages of five at \$10.00 per package.

A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE.—If you wish to know where to save money on bee supplies send for our new price list. It may be worth your trying.

H. S. Doby & Sons, St. Anne, Ills.

FOR SALE.—Second-hand 60-lb. cans, two to the case, 50c per case f. o. b. New York. Also second-hand maple-syrup cans at 10c each.

Hoffman & Hauck, Inc., Richmond Hill, N. Y.

FOR SALE.—Four 8-frame, two 10-frame hives, with frames, \$1.00 each; 15 supers for 8-frame bodies with sections, 50c each; 500 section-honey boxes, $4\frac{1}{4}$ -inch, never been uncured, \$2.50.

Chester V. Kimmell, Ligonier, Ind.

FOR SALE.—Mr. Beekeeper of Alabama, Florida, Georgia, Louisiana, Mississippi, and Tennessee, send me a bill of your wants of bee supplies and let me make you good prices on the same.

M. Bates, Greenville, E. D. No. 4, Ala.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines: GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 36c in cash and 38c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

WANTS AND EXCHANGE

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, O.

TO TRADE.—Model 10 Royal standard type-writer for saw table, queen-excluders, hives, or equipment, bees, honey, beeswax, or \$75.00 in cash. Cash for honey and wax. Send sample and price. E. A. Harris, Albany, Ala.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 38c cash, 40c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival. The A. I. Root Co., Medina, Ohio.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1919 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Son, Hamilton, Illinois.

Our Food Page—Continued from page 444.

on a well-oiled sheet and bake in a moderate oven.

THOUSAND ISLAND DRESSING.

- 1 cup mayonnaise, ½ dozen stuffed olives,
(Jan. issue) cut small
¼ cup Chili sauce

Mix the above ingredients and serve at once with any light vegetable salad such as head lettuce or endive. The olives may be omitted.

SALMON OR TUNA FISH PIE.

- 1 can salmon, 1 lb. size 1 cup thin white sauce
2 hard-boiled eggs 1 teaspoon salt
Dash pepper

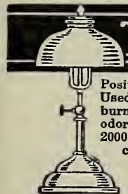
CRUST FOR PIE.

- 1 cup flour 2 teaspoons baking
1 tablespoon shortening powder
½ teaspoon salt

Flake the salmon or tuna fish and remove bones and skin, add the hard-boiled eggs sliced, put in earthen or glass baking dish, pour over the white sauce and put in oven to heat while making the crust. Make the ingredients for crust into small biscuits, place over the hot fish and bake in a quick oven until the biscuits are done.

BEES We furnish full colonies of Italian bees in double-walled hives, single-walled hives, and shipping boxes; 3-frame nucleus colonies, and bees by the pound. Tested Italian queen, \$2.00; untested, \$1.50.
I. J. STRINGHAM, GLEN COVE, N. Y.

"Special Crops" A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. \$1.00 per year. Sample copy 10c. Address
Special Crops, Box G, Skaneateles, New York



The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.

306 E. 5th St., Canton, O.

FLOUR IS HIGH

Why not live better and save money, too?

Grind your wheat into Best Whole Wheat or Graham Flour. Your doctor knows how healthy these are. Make the BEST Corn Meal, the old-fashioned sort you can't buy at any price nowadays.

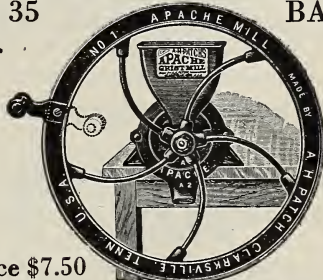
Do all sorts of fine and coarse grinding with an

APACHE MILL

Wt. 35
lbs.

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Price \$7.50

This Mill Makes Best Corn Meal, Graham Flour, Rye Flour, Chops, Hominy, Cracks Peas, Grinds Coffee, Spices, etc. Perfect adjustment for coarse or fine work. Will send Mill prepaid by Express \$7.50

APACHE GRIST MILL—Largest capacity, fastest grinding, easiest turning handmill. Does more, lasts longer.

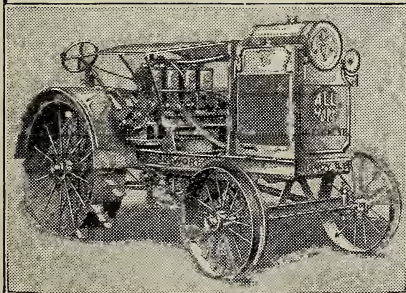
A. H. Patch, Inc., Clarksville, Tenn.
The Blackhawk Corn Sheller Inventor
Invented 1885

Dixie Beekeeper

Bee Journal is now out, covering the whole Dixieland, containing the very best our industry has to offer here. We ask for your subscription one dollar a year. Sample copy free.

Dixie Beekeeper, Waycross, Ga.

ALLWORK KEROSENE FARM TRACTOR

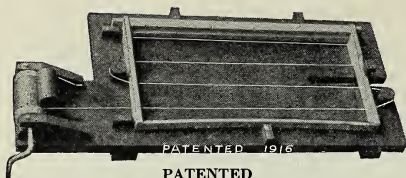


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Strong and Durable**

**Five Years' Successful Service
for Satisfied Owners**

Our **FREE CATALOG** and Suggestions for Tractor Users will interest you whether you buy an **ALLWORK** or not. Write for them

ELECTRIC WHEEL COMPANY
Box 23A, QUINCY, ILLINOIS



PATENTED

Wright's Frame-Wiring Device

Most rapid in use. Saves cost of machine in one day. Tighter wires; no kinks; no sore hands.

G. B. Lewis Company, Watertown, Wisconsin

PRODUCE MORE COMB HONEY

Use The

Lotz 1-Piece Section

THE KIND That DOES NOT BREAK
IN FOLDING

We manufacture millions of sections each year and therefore can fill your needs at all times.

We also carry a complete line of other Bee Supplies. Send us your inquiries and we will be pleased to quote your our best price.

Our 1919 catalog free for the asking

August Lotz Co., Boyd, Wisconsin

Beeswax Wanted

In big and small shipments to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1918. We are paying higher prices than ever for wax. - We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck

The Comb-foundation Specialist

Augusta, Kansas

Established 1899

AROUND THE OFFICE

M.-A.-O.

Praps after you beekeepers have read Hersheiser's article on skunks in this edishun you wont all be stickin up your noses at Philosopher Mel Pritchard for tryin to know how to handle em to best advantage. Hersheiser aint no fool and he dont go off at half cock neither and he says skunks is all fired bad stuff for bees, and serous business. Thats jest what a lot of beekeepers is writin Gleanins so Iony Fowls says. The skunks seem to be havin their day everywhere and that day growin bigger. The law here in Ohio protects em jest as in York State. Thereby injurin me both in my apiary and in my fur industry. If theres one thing I love better 'n catchin a good fish its to peel a part of my livin right off some varmit's back. Its some easier 'n workin by the day and then too its a satisfackshun to even up with a varmit. I wish squash bugs was furred good, so I do. I'd skin em afore they was dead. But I started out on skunks and I'm goin to continoo my discourse and try to make myself useful to beekeepers about skunks, for I aint all fool about skunks so I aint. I know somethin about em as well as Mel, and when Doc Phillips at Washinton in charge of apiculture bureo of entomology U. States dept. of agriculture Washinton, D. C., wakes up to the cryin need of a skunkologist in apiculture work I'm a candidate, so I am. He'll hear from me and my friends too so he will when the time comes. But I am digressin for I get to thinkin of occupyin that offishal posishun and I cant think of nothin else. Hersheiser and Mel needn't try for it neither so they neednt. To show I have some qualificashuns for the posishun in question I want to tell how I beat the ornery tail pointin low down bee eatin varmits last year—and I aint a foolin about it either. I done it. I took some medium chicken fence wire fully wide enough to extend six or eight inches beyond each side the hive, and about 18 inches the other way, and took a pair of wire cuttin shears and cut back into the wire 8 inches in two places so as to fold back flat the wire mesh for 8 inches at the center jest the width of my hives. Then with staples I fixed sharp sticks onto each inner and outer corner. Then my wire mesh when in place for business extended 8 inches along each side of the hive havin a width of six or eight inches on those sides and 10 inches of wire mesh out in front, part of it in front doubled, all of which was held in place by the sharp stakes about two inches above the ground. It didnt take no time to put this skunk tanglefoot down if I had cut the wire right, and it didn't take but mighty little time to cut the wire to same measurement each one and staple the sharp sticks on the corners. This consummit invenshun could be taken up with nigh to no trouble at all, and you sometimes want to take it up but you can work

around a hive and not take it up if you are the leastwise careful. I'm tellin you the pestiferous skunks dont coddle none to this sort of wire arrangements. That woant what their feet was made for, and they aint no fancy tight wire artists and they aint in no position to paw at a hive or roll bees around on the ground when their feet is messed up in wire and their mental energies is all directed to seein if they cant some ways get out of such a doggoned disconcertin situashun. A couple steel traps right at each front corner of the hive does business too but it stirs up a unpleasantness later that lasts around there all summer, and praps you carry a big part of this unpleasantness home with you where your wife is and you'll find you aint welcome. I presoom my anty skunk invenshun is too dog-gone much trouble like most beekeepin short cuts but it works jest the same. Its on the same principul that cattle wont cross a cattle guard of sharp sided sticks placed close together lengthwise. Their feet woant made for no such contrapshun.

Established 1885

It will pay you to get our catalog and order early.

Beekeepers' Supplies

The Kind You Want and The Kind That Bees Need.

The A. I. Root Co.'s brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.

High Hill, Montgomery Co., Mo.

MASON BEE SUPPLY COMPANY
MECHANIC FALLS, MAINE

From 1897 to 1919 the Northeastern
Branch of The A. I. Root Company

Prompt and Efficient Service BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway.
If you have not received 1919 catalog, send name at once.

GOLDEN QUEENS.....

After April 1: Untested, \$1.25 each, 6 for \$7.00, or \$13.00 per dozen, or 50 for \$48; also 3-banded untested at same price; tested, \$3.00 each, and my very best at \$5.00 each. Satisfaction.

R. O. Cox, Rt. 4, Greenville, Alabama

Mott's Northern-bred Italian Queens

are hardy, prolific, gentle, and hustlers, therefore resist well disease.

Untested, \$1.00 each; \$10.00 for 12.

Select Tested, \$2.00 each.

Virgins, 50c each.

Plans "How to Introduce Queens," and "Increase," 25c.

E. E. Mott, Glenwood, Mich.

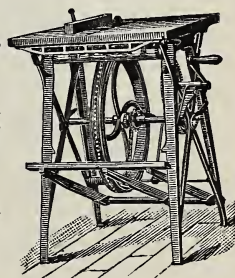
BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
545 Ruby St
ROCKFORD ILLINOIS



"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

QUEENS QUEENS QUEENS

GOLDEN AND 3-BANDED STRAINS

The demand for Our Famous Disease-Resisting Honey-Gathering Hustlers is greater than ever before. Send for circular and price list.
Book your order now.

Untested, 90c; 50 or more, 75c each; select untested, \$1.00; 50 or more, 90c each. Tested, \$1.75 each. Select tested, \$2.00. Virgins, 40c. All queens by return mail or soon.

M. C. BERRY & CO., HAYNEVILLE, ALA., U. S. A.

Talks to Beginners.—Continued from Page 462

expense. The honey that drains out of the cappings falls, of course, into the tub beneath. When one tub is full the barrel can be lifted over an empty one, and the work continued.

Between the uncapping barrel and the outside door should be a generous space for the storing of two sets of supers—the full supers on the one hand and the empty supers on the other.

The Straining Can.

One of the very best arrangements for straining honey is a large cheesecloth bag, the larger the better, up to a point almost as large as the tank itself. This should be tacked to four cross-cleats at the top of the can, and in the bottom of the bag there should be a heavy wire hoop to keep the cloth from floating.

No honey should be drawn off from the tank into cans until the tank itself is nearly full. The impurities in the honey consist of bits of cappings and wax, nearly all of which are lighter than the honey itself, and therefore float to the top. In this way the cloth does not quickly become clogged with the impurities, the honey itself being clarified largely on the gravity principle. Such a strainer will not have to be cleaned for days. If a cloth is merely stretched over the top of the can and the honey poured thru it, it will clog up within an hour or two so that a fresh one will have to be substituted.

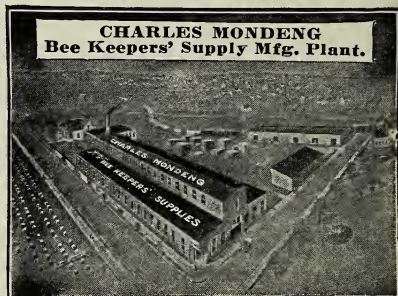
There is no time in the whole beekeeping year when a man has such cause to be enthusiastic as when that never-ending, steady hum amounting almost to a roar indicates that the bees are fairly tumbling over themselves in their eagerness to bring in more and more honey; and when that honey, just thrown from the combs, runs down the side of the extractor in a layer almost an inch thick, truly it is a time when it is good to be alive—a time when even the grouchiest pessimist brightens up and becomes enthusiastic.

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

\$30,000 WORTH OF Bee Supplies



All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

*Will Take Beeswax in Trade at
Highest Market Price.*

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

BEE - SUPPLIES

FALCON LINE

We carry the largest supply
in our section. Send us
your inquiries.

Lowest Prices, Quality Considered

C. C. Clemons Bee Supply Co.

128 Grand Ave.

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**BANKING
BY MAIL
AT 4%**

DISTANCE is no hindrance to saving money
BY MAIL with this large safe bank, at 4
per cent compound interest.

No matter where you live, send today for a
copy of our interesting booklet "Banking by
Mail."

THE SAVINGS DEPOSIT BANK CO.

A. T. SPITZER, Pres.

E. R. ROOT, Vice Pres. E. B. SPITZER, Cash.

MEDINA, OHIO

Superior Foundation Excels

READ THE FOLLOWING:

Superior Honey Co., Ogden, Utah.

Cushman, Oregon.

Dear Sirs:—Your foundation arrived O. K. I gave some of it and some of the the other make (in full sheets) to a natural swarm. In three days the bees had Superior Foundation nearly full drawn, and some of the cells at top of frames were two-thirds full of honey, while the other foundation was not over half drawn out. The o'her foundation was purchased this spring. I surely would ask for no better article than *Superior Foundation*, as it is a first-class article. Shall use some more in the next natural swarm and report further results. Yours respectfully,
June 8th., 1919.

L. W. Derrin.

OUR MACHINES ARE RUNNING TO FULL CAPACITY,
WE GUARANTEE PROMPT SHIPMENT.

Superior Honey Company -:- Ogden, Utah
(MANUFACTURERS OF WEED PROCESS FOUNDATION)

HONEY WANTED HONEY

Write us what you have to offer in extracted or comb. If comb, state how packed, graded, and quantity. If extracted, state how put up, mail sample, and quote your lowest price. We will buy unlimited quantities if price and quality are right.

C. H. W. WEBER & COMPANY
2146 CENTRAL AVENUE CINCINNATI, OHIO

HONEY MARKETS

From the majority of reports, honey is moving rather slowly as is to be expected at this time of the year. The New York market, however, is becoming stronger and prices advancing somewhat. On the whole we consider prospects improving.

Crop Report.

Under date of July 24, E. R. Root telegraphed from Washington, D. C., as follows: "I have seen several hundred crop reports from the Bureau of Crop Estimates, covering the whole of the clover area of the country. Many of the reports are from men I know. These reports are later than ours and show that there will be no shortage of clover honey this year. Probably a lighter crop than last year, and crop little short in Ohio, Indiana, and Illinois but good in other clover States."

U. S. Government Market Reports.

HONEY ARRIVALS, JULY 1-14.

Medina, O.—2,575 lbs. Mass. and 82,920 lbs. Kentucky.

Keokuk, Ia., and Hamilton, Ill.—No arrivals.

SHIPPING POINT INFORMATION.

Los Angeles, Calif.—New crop; supplies light, demand and movement good, market firm, little change in prices. Carloads f. o. b. usual terms. Californians, orange blossom 18-20c; light amber sage 17-19c; light amber alfalfa 15-16c per pound.

San Francisco, Calif.—Old stock; no sales reported. New stock: not yet on market.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(The prices quoted in this report, unless otherwise stated, represent the prices at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding two weeks. Prices represent current quotations.)

Chicago.—Receipts light, demand and movement slow, market weak. Sales to jobbers: extracted, white 17-18c, light amber 15-16c per lb. Beeswax: demand and movement good, market firm. Refined, bleached 62-72c, unbleached 50c, unrefined 45-46c.

Philadelphia.—Extracted: approximately 2,700 lbs. freight N. Y. arrived. Beeswax: 100 lbs. freight N. Y. and 200 lbs. freight N. C. arrived. Supplies not cleaning up, market oversupplied. Practically no demand or movement. Sales to jobbers—extracted, California light amber 13-14c per lb.

Denver.—New crop: receipts and movement slow, market steady. Sales to jobbers—Colorado, comb: white, 24-section case \$7.50. Extracted: white 18c per lb. Beeswax: cash to producer on farm—light 38c per lb.

St. Louis.—Supplies light, practically no demand or movement, market weak, very few sales. Sales to jobbers—extracted: Southern amber, per lb., in barrels 11-12c, in cans 13-16c. Beeswax, prime 37½c per lb.

Kansas City.—Approximately 150 packages Missouri arrived. Demand slow, movement draggy, market steady, no change in prices. Sales to jobbers—comb: Missouri No. 1 light, 24-section flat cases \$7.50. Extracted: Colorado No. 1 light, 15c per pound. Beeswax: 35-40c per pound.

Cincinnati.—No arrivals. Extracted: supplies liberal, no demand, market weak, no sales reported. Comb: supplies practically exhausted, no jobbing sales. Beeswax: supplies moderate, demand and movement slow, market steady. Sales to jobbers—pure yellow 40-42c per pound, dark yellow 38c per pound.

Minneapolis.—Supplies very light. Too few sales to establish market.

St. Paul.—Supplies very light. Too few sales to establish market.

New York.—Arrived: 10 barrels from Florida. Imported: 120 barrels from Porto Rico, 225 barrels from Cuba, 135 barrels from West Indies. Exported: 1,000 cases to Sweden, 100 barrels to England, 190 barrels to Italy, 100 cases to Norway, 50 cases

to France and 360 cases to England. Export movement good, local demand and movement very slow, few sales reported. Sales to jobbers—extracted: Porto Rican and Cuban, per gallon \$1.25-1.50. California, white per pound 17-17½c. Beeswax: arrived, 30 tons from Pennsylvania. Imported: 150 bags from West Indies. Demand moderate. Sales to jobbers—light, 41-43c, dark 38-40c per lb. Cleveland.—Supplies light. Demand and movement slow. Extracted: sales to wholesale confectioners and bakers—Western 60-pound tin white clover mostly 16-18c, some fancy high as 20c per pound. Ohio white clover mostly 20c. Comb: sales to jobbers—Ohio, mostly \$3.75-4.00 per dozen combs. Beeswax: too few sales to establish market.

EXPORTS OF HONEY, JUNE 1-20, 1919.

Total, 476,207 lbs.; to Sweden, 123,340 lbs.; to United Kingdom, 109,067; to Belgium, 63,000; to Netherlands, 42,000; to Switzerland, 30,000; to France, 28,440; to Canada and Newfoundland, 6,665; to Denmark, 6,000; to Norway, 4,400; to all other countries, 63,355 lbs.

Geo. Livingston,
Acting Chief of Bureau.

General Quotations of Wholesalers.

[These firms are asked to quote the wholesale price they make to retailers. Accordingly their prices must be figured at least one profit higher than the price paid the producer. The large dealers do not quote prices in print that they will pay futurity to producers.]

NEW YORK.—We quote from several of the leading honey dealers in New York City, under date of July 16:

"Market improving owing to better export demand and small spot stocks. Extracted honey, white 19-21c; light amber, in cans 15½-21c."

"There is a good supply of honey on spot, principally Cuban, San Domingo, Haiti, and Porto Rico in barrels with a considerable quantity of case goods in addition. There are big inquiries in the market, and a fair business has been done, with the result that prices have been advanced and the future prospects are good. Beeswax is firm but quiet and spot stocks are very small. Extracted honey, light amber in cans 14-15c, in barrels \$1.50; amber in cans 14-15c, in barrels \$1.50. Clean, average yellow beeswax, per lb. 42-43c."

"Demand slow, stocks of amber plentiful, of light moderate. Extracted honey, white 17c; light amber in cans 15c, in barrels \$1.25; amber in cans 14c, in barrels \$1.10."

"Decidedly stronger with good demand for export. Extracted honey, white 16c; light amber in cans 14c; in barrels 12c; amber in cans 13c, in barrels 11c. Clean, average yellow beeswax, per lb. 42c."

LIVERPOOL.—Since our last report business has been very slow and scarcely any transactions have transpired. Values are nominally unchanged and we therefore repeat them as follows: Australian, in cases, 14-15c per lb.; West Indian and Cuban, 14-16c; Jamaican, 15-16c per lb.; Chilean, Pile No. 1, good quality, 17½-18½c per lb.; No. 2, 17 1/3c; No. 3, 15½c. There has been a little more activity in beeswax and prices have advanced somewhat. The value of good quality beeswax is about 47 to 48 cents per lb. Taylor & Co.

Liverpool, England, June 24.

CHICAGO.—Up to this date none of the new crop of comb has come on the market, but it will likely bring 35c per lb. At present there is very little call for extracted and prices are unchanged. There continues to be a good demand for clean beeswax at 40c per lb. R. A. Burnett & Co.

Chicago, Ill., July 15.

KANSAS CITY.—Market on comb honey very light here, selling around \$7.50 per case, 24-section. Extracted honey moving fairly well. Stock not large, with no new honey on the market. Last year's stock moving at 15c for light amber.

C. C. Clemons Bee Supply Co.

Kansas City, Mo.

ST. LOUIS.—Receipts of comb honey so far very light. Some extracted honey in barrels arriving from the south. Market still very dull. Extracted honey, light amber in cans 14-16c; amber in cans 12-14c, in barrels 12c. Clean, average yellow beeswax, per lb., 37½c. R. Hartmann Produce Co. St. Louis, Mo., July 16.

DENVER.—Bees have in most localities in this State so far made only a living, and prospects for a honey crop are not good at present. Comb honey, none in the market. Extracted honey, white per lb. 22c; light amber, in cans 20c. Clean, average yellow beeswax, per lb. 36 cash, 38c trade.

The Colorado Honey Producers' Ass'n. Denver, Colo., July 10.

PORTLAND.—There is a fair demand for extracted honey at lowered prices with increased consumption. Large stocks of extracted honey carried over. New comb honey arriving in limited way. Extra fancy \$7.50; fancy \$7.00, No. 1 \$6.50, No. 2 \$6.00. Extracted, white in cans 15c per lb.; light amber 13c per lb.; amber 12c per lb. No beeswax arriving. Look for good crop both comb and extracted.

Portland, Ore., June 25.

MONTREAL.—Variety of reports on white clover crop. Some say 1/3 average; others, fair average crop. Prices irregular, very little sold so far, as prices appear too high. Comb honey, extra fancy per case 32c; fancy 30c; No. 1 28c; No. 2 25c. Extracted honey, white per lb. 21c; light amber in cans 19c, in barrels 18c; amber in cans 18c, in barrels 17c.

Gunn, Langlois & Co., Ltd. Montreal, July 16.

TORONTO.—Prices for new crop have not yet been named and last season's crop is practically exhausted.

Eby-Blain, Limited. Toronto, Ont., July 16.

CUBA.—Extracted honey, light amber, in barrels \$1.12 per gallon; amber, in barrels \$1.12 per gallon. Clean, average yellow beeswax, per lb. 32c.

Matanzas, Cuba, July 9. Adolpho Marzol.

TEXAS.—Good demand for bulk comb, extracted slackening. Comb honey, fancy, per case, 20c; No. 1, 19½c. Extracted honey, white, per lb. 18c; light amber, in cans 17½c. Clean, average yellow beeswax, per lb. 36c.

J. A. Simmons. Sabinal, Tex., July 12.

Root Untested Queens

\$2.00 for 1	\$21.60 for 12	\$150.00 for 100
\$11.40 for 6	\$80.00 for 50	Prompt Shipm't

The A. I. Root Co. - Medina, Ohio

Rocky Mountain Honey Producers

We carry a full line of

Honey Containers and Bee Supplies

Two five-gallon Honey Cans in Shipping Cases—Export Cases \$1.55. Domestic cases \$1.45. The cans quoted have a three-inch screw cap. Both cans are strongly made, with heavy partitions. Buy your new extracting outfit of us and save money. We have the most practical Capping Melter for commercial beekeeping. Let us make you a cash offer on your Wax and Honey Crop.

The Foster Honey and Mercantile Co.

Boulder, Colorado

A Big Surprise

(I)N account of having such a run of business early we supposed later we would not have so much, but were surprised at the avalanche of orders received in May and June. During these two months we averaged a week behind on orders. It seems that there are beekeepers yet that do not order hives till the bees give word by swarming that hives are needed. We expect from now on to keep abreast of orders. If foundation and sections are needed we hope to get them to you promptly unless another avalanche comes in July.



F. A. Salisbury
1631 West Genesee Street
Syracuse, N. Y.